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# H. Greene

## 1985-1989

### Catalogue #1484-1993

### Journal

1985 Calif: Contra Costa, San Bernadino Cos.  
Arizona: Pima, Cochise Cos.

1986 Calif: San Bernadino, Siskiyou Cos.

1987 Costa Rica  
Calif: Contra Costa Co.  
Arizona: Pima, Cochise Cos.  
Costa Rica

1988 Costa Rica  
Calif: Mendocino Co.  
Arizona: Cochise Co.

1989 Costa Rica  
Calif: Contra Costa Co.  
Arizona: Cochise Co.  
Costa Rica  
Arizona: Cochise Co.

H. Green  
1955-1959

Catalogue 1948-1953

Inventory

1955 Calif. Coast Range San Bernardino Co.  
Arizona: Pima Cochise Co.

1956 Calif. San Bernardino, San Diego Co.

1957 Costa Rica  
Calif. Contra Costa Co.  
Arizona: Pima Cochise Co.  
Costa Rica

1958 Costa Rica  
Calif. Mendocino Co.  
Arizona: Cochise Co.

1959 Costa Rica  
Calif. Contra Costa Co.  
Arizona: Cochise Co.  
Costa Rica  
Arizona: Cochise Co.

Greene, H.

1985

# Catalogue

15 January

Africa, no further data.

1484

Atractaspis mucirolepidota purchased as juvenile in 1974; <sup>preserved</sup> 1985

Hwy 25, 2.6 mi SE Jct. Hwy 146 to Pinnacles National Monument,

San Benito Co., California

1485

Lampropeltis getulus AOR after dark, coll. D. B. Wake 1 June 1979

± 2.0 mi S. of FSR 1050 (≈ 1 mi E. Hutton Guard Campground) on

FSR 1060, NW ¼ of SW ¼ - 1 Sect 27, T48N, R11W, Siskiyou Co., California

1486

Lampropeltis getula Coll. unknown, 18 April 1984, gift from O. S. U.

9 March

S. side of Box Spring Mtns., Riverside Co., California

1487

Lichanura trivirgata active at 1259 hr, 435 g

10 March

Miramar Rd. at I 805, San Diego, San Diego Co., California

1488

Lampropeltis getulus under board 1435 hr

22 March

Strawberry Canyon, Berkeley, Alameda Co., California

1489

Crotalus viridis 13.0 g, Sceloporus (preg) 11.9 g before preservation

18 April

≈ 5 mi E. Newberg Spring on National Trails Hwy, San Bernardino Co., California

1490

Crotalus cerastes AOR 0008 hr 80 g

Pisgah Lava Flow, San Bernardino Co., California

1491

Crotalus mitchelli (stomach contents only) <sup>1306 hr</sup> 815 + 160 mm ♂ 434 g <sup>preg = Neotoma HF</sup> clipped 1st vertebra

1492

Bizora elegans, 0.8 mi E. JRR, 2100 hr AOR

19 April

Pisgah Lava Flow, San Bernardino Co., California

1493

Crotalus mitchelli 1.1 mi W of RR, old DOR at 1921 hr.

1494

Bizora elegans 1.2 mi W of RR, fresh DOR at 1932 hr.

21 April

Pisgah Lava Flow, San Bernardino Co., California

1495

Bizora elegans 0.7 mi S. Natl Trails Hwy on Pisgah Crater Rd. <sup>AOR at 1930 hr</sup>

30 April

Tar Rd near Jct. with Mires Rd., Alameda Co., California

1496

Crotalus viridis DOR Coll. P. Kelly



Greene, H.

1985

- 3 May Coral Hollow Rd. at Rad. Jct. San Joaquin Co., California  
1497 Lampropeltis getulus AOR/DOR 2053 hr
- 20 April ≈ 6 mi. SW Pisgah Crater (8.9 mi S. Natl. Trails Hwy on powerline Rd.), San Bernardino Co., California  
1498 Xantusia vigilis under yucca  
1499 Xantusia vigilis under yucca
- 
- 1500 Lichanura trivirgata DOR Coll. B.M. McGorty
- 19 May National Trails Hwy at Pisgah Lava Flow, San Bernardino Co., California  
1501 Phyllorhynchus decurtatus DOR between RR & Crater Rd.  
1502 Crotalus cerastes 498+137 mm, 180g, <sup>AOR 2215 hr</sup> (snake released) <sup>1 Spermophilus H F</sup> <sup>between RR & Crater Rd</sup>
- 17 May Natl Trails Hwy at W. Edge of Pisgah Lava Flow, San Bernardino Co., California  
1503 Arizona elegans AOR snake released, 570+88, 58g, Dipsosaurus H F
- 24 May Pisgah Lava Flow San Bernardino Co. California  
1504 Valpes macrotus DOR 2125 hr, 6.9 mi W. RR  
1505 Phyllorhynchus decurtatus AOR  
1506 Chionactis occipitalis AOR 2119 hr 2.0 mi W of RR 251+51 mm 9.5g  
1507 Chionactis occipitalis AOR 2131 hr 1.9 mi W of RR 273+45 7.5g  
3.5 mi E. Newberry Springs, San Bernardino Co., California  
1508 Phyllorhynchus decurtatus AOR 2157 hr 35g 380+66 mm
- 25 May Pisgah Lava Flow, San Bernardino Co., California  
1508 Chionactis occipitalis AOR 2113 hr, 0.1 mi E of Crater Rd. 249+45 mm 10.2g  
1509 Chionactis occipitalis AOR 2124 hr, 1.3 mi W of RR 266+54 mm 10.2g  
1510 Phyllorhynchus decurtatus AOR 2126 hr, 1.9 mi W of RR 294+49 mm 18.5g  
1511 Phyllorhynchus decurtatus AOR 2134 hr, 1.0 mi E of Crater Rd. 266+45 mm 12.2g  
1512 Chionactis occipitalis AOR 2142 hr, 1.4 mi W of RR 250+47 mm 10g  
1513 Chionactis occipitalis AOR 2245 hr, 9.1 mi W of RR 246+47 mm 7.6g



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1985

- 25 May Pisgah Lava Flow, San Bernardino Co., California  
1514 Chionactis occipitalis AOR 2259 hr, 0.9 mi W of RR 255+57 mm 9g
- 26 May Pisgah Lava Flow, San Bernardino Co., California  
1515 Crotalus cerastes AOR 2118 hr, Natl Trails at Crater Rd, 450+32 mm <sup>100 Hg (-prey)</sup> prey 13g  
Newberry Mountain, 0.7 mi E. Newberry Springs on National Trails Hwy,  
San Bernardino Co., California  
1516 Crotalus mitchelli DOR 2220 hr
- 27 May Pisgah Lava Flow, San Bernardino Co., California  
1517 Chionactis occipitalis AOR 2035 hr, 0.3 mi W of RR 253+55 mm, 8g  
1518 Phyllorhynchus decurtatus AOR 2055 hr, 1.6 mi W of RR 375+66 mm, 29g  
1519 Arizona elegans AOR 2125 hr, 4.0 mi W. of RR 380+53 mm 16.5g
- 28 May Pisgah Lava Flow, San Bernardino Co., California  
1520 Chionactis occipitalis <sup>active on flow</sup> before sunset, 1900 hr
- 29 May Pisgah Lava Flow, San Bernardino Co., California  
1521 Chionactis occipitalis <sup>yellow of faint orange</sup> AOR 2019 hr 0.4 mi W of RR 256+50 mm 8.2g  
408+41 mm 31g  
1522 Phyllorhynchus decurtatus AOR Jct. Crater Rd & Natl. Trails Hwy 2043 hr  
<sup>yellow w/ faint orange</sup>  
1523 Chionactis occipitalis AOR 2121 hr 0.4 mi W of RR 260+57 mm 8.5g  
<sup>snail(?)</sup>  
1524 Chionactis occipitalis AOR 2142 hr 0.6 mi N. Natl. Trail on Crater Rd.  
1525 Arizona elegans AOR 2209 hr 1.4 mi W. RR 570+86 70g (-prey)
- 30 May 22.9 mi E. Judlow on Hwy 66, San Bernardino Co., California  
1526 Crotalus cerastes AOR 2048 hr 370+36 mm 45g  
4.2 mi E. Judlow on Hwy 66, San Bernardino Co., California  
1527 Crotalus cerastes AOR 2208 hr 305+17g 23.8g
- 31 May Pisgah Lava Flow, San Bernardino Co., California  
1528 Chionactis occipitalis AOR 2039 hr 1.4 mi W. of RR 278+62 mm 13g



Greene, H.

1985

1 June

Pisgah Lava Flow, San Bernardino Co., California

1529 Chionactis occipitalis AOR 2036 hr, 0.7 mi N. Natl. Trails on Crater Rd. <sup>232+39+? mm 6.4g</sup>

1530 Crotalus cerastes AOR 2049 hr, 0.1 mi W. of RR 299+39mm 26.5g

1531 Chionactis occipitalis AOR 2052 hr, 0.2 mi. W. of RR 260+54mm 8g

21 June

N. end of Eagle Lake, 4.5-5 km (airline) NW of Spalding Tract, Lassen Co., California

1532 Crotalus viridis AOR 2131 hr

1533 Crotalus viridis AOR 2142 hr

23 June

N. end of Eagle Lake, 4.5-5 km (airline) NW of Spalding Tract, Lassen Co., California

1534 Scaphiopus intermontanus

18 June

UC Botanical Gardens, Berkeley, Alameda Co., California

1535 Crotalus viridis

12 June

Pisgah Lava Flow, San Bernardino Co., California

1536 Rhinocheilus lecontei AOR  $\approx$  midnight at Mine Gate on Crater Rd., released. Coll. <sup>865+25 mm, 105g, HW 11.2 mm, HL 19.8 mm</sup> ~~Cnemidophorus tigris~~ HF 82+22 mm, 16g, MP 16.1 mm C. Luke

30 July

1.2 mi N. Marana Rd on Trico Rd., Pima Co., Arizona

1537 Crotalus cerastes AOR/DOR 2359 hr

31 July

4.4 mi W. of Camino del Oeste on Gates Pass Rd. Tucson Mtns Pima Co., Arizona

1538 Rhinocheilus lecontei fresh DOR 2020 hr 525+53+? mm 67g

5.2 mi S. of Mile Wide Rd on Sandario Rd., Pima Co., Arizona

1539 Lampropeltis getulus AOR 2235 hr, heavy rain  $\approx$  1140+140 mm ♂ 520g

0.1 mi from A.S. Desert Museum on Kinney Rd., Pima Co., Arizona

1540 Pituophis melanoleucus AOR/DOR 2336 hr 880+118 mm 280g

1 August

1.4 mi. N. of Mile Wide Rd on Sandario Rd., Pima Co., Arizona

1541 Crotalus atrox AOR/DOR 2128 hr 630+46 mm 195g

4.9 mi S. of Mile Wide Rd on Sandario Rd., Pima Co., Arizona

1542 Rhinocheilus lecontei DOR 2146 hr



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1985

2 August

0.1 mi. N. Vail, Pima Co., Arizona

1543

Crotalus scutulatus AOR 2157 hr, el.  $\approx 3300'$  635+38 mm 145g

3 August

12 mi. S. Stateline Rd on U.S. 80, Cochise Co., Arizona

1544

Thamnophis marcianus DOR 1929 hr

$\approx 1/5$  mi S. Stateline Rd on U.S. 80, Cochise Co., Arizona

1545

Thamnophis marcianus DOR ~~1930~~  $\approx 1945$  hr

20.7 mi. S. Stateline Rd. on U.S. 80, Cochise Co., Arizona

1546

Crotalus atrox AOR/DOR 2030 hr

16 mi S. Stateline Rd. on U.S. <sup>80</sup> ~~80~~, Cochise Co., Arizona

1547

Thamnophis marcianus DOR 2156 hr

4 August

E. Slope of Cave Creek Canyon, above Asa Spring, Chiricahua Mtns, Cochise Co., Arizona

1548

Crotalus lepidus  $\approx 1500$  hr 25.3g  $\approx 320+32$  mm

4.9 mi. S. of Portal, Cochise Co., Arizona

1549

Crotalus scutulatus AOR 2042 hr

3.5 mi. S. of Portal, Cochise Co., Arizona

1550

Crotalus atrox AOR/DOR 2048 hr

2.3 mi S. Arinos on Hwy 338, Hidalgo Co., New Mexico

1551

Crotalus viridis DOR 2048 hr Coll. B. Torberlin

26 mi. S. of Portal Rd. on U.S. 80, Cochise Co., Arizona

1552

Diadophis punctatus DOR coll. B. Torberlin 19 July 1985

Cave Creek Ranch, Chiricahua Mtns., Cochise Co., Arizona

1553

Diadophis punctatus under rock Coll. M. Beckwith 19 July 1985

Cave Creek Canyon, Chiricahua Mtns., Cochise Co., Arizona

1554

Trimorphodon biscutatus AOR just above  <sup>$\approx 5000'$</sup>  Stewart Campground <sup>Coll. B. Torberlin</sup> 25 April 1985

5 August

East Turkey Creek, Chiricahua Mtns., Cochise Co., Arizona

1555

Crotalus molossus



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1985

5 August

Cave Creek Canyon, Chiricahua Mtns., Cochise Co., Arizona

1556

Elgaria kingi coll. V.D. Roth, near S.W. R.S.

1557

Elaphe tritaenias AOR 2018 hr, 3.8 mi N. Portal

1558

Hypsiglena torquata DOR 2110 hr, 4.9 mi N. Portal 412+80 mm 32g

1559

Crotalus molossus DOR  $\approx$  2130 hr, coll. B. Torberlin 916+96 mm 430g

1.5 mi. S. Portal, Cochise Co., Arizona

1560

Micruroides eurypanthus AOR 2045 hr (see 1562)

10 mi. N. of Portal Rd. on U.S. 80, Hidalgo Co., New Mexico

1561

Crotalus scutulatus DOR <sup>2024 hr</sup> 820+60 mm 440g coll. B. Torberlin

1.5 mi. S. Portal, Cochise Co., Arizona

1562

Leptotyphlops

regurgitated by HWG 1560, 256+10 mm 4g

12 August

24th Freeway, Phoenix, Maricopa Co., Arizona

290+150 mm

470g

1563

Heloderma suspectum rec'd from Dept. Game & Fish, coll. 7 August 1985

W. Bajada of Tucson Mtns., 0.9 mi E. Kinney Rd on Gates Pass Rd., Pima Co., Arizona

1564

Pituophis melanoleucus AOR/DOR 1929 hr 724+115 mm 132g

E. Bajada of Tucson Mtns., 0.9 mi W. Camino de Oeste on Gates Pass Rd., Pima Co., Arizona

1565

Trimorphodon biscutatus DOR 2111 hr 532+115 mm 38g

W. Bajada of Tucson Mtns., 1.4 mi E. Sandario Rd on Mile Wide Rd., Pima Co., Arizona

1566

Crotalus ligis AOR 2136 hr

34.3g

W. Bajada of Tucson Mtns., 1.2 mi E. Sandario Rd on Mile Wide Rd., Pima Co., Arizona

1567

Rhinocheilus lecontei AOR 2139 hr.

252+43 mm

7g

W. Bajada of Tucson Mtns., 1.7 mi E. Sandario Rd on Mile Wide Rd., Pima Co., Arizona

1568

Pituophis melanoleucus DOR 2354 hr

885+130 mm

190g

14 August

W. Bajada of Tucson Mtns., 1.5 mi E. Sandario Rd on Mile Wide Rd., Pima Co., Arizona

1569

Trimorphodon biscutatus AOR 2018 hr

150g

6 September

Pisgah Lava Flow, San Bernardino Co., California

1970

Arizona elegans AOR 2205, 2.0 mi ~~E~~ W. of RR



Greene, H.

1985

7 September Pisgah Lava Flow, San Bernardino Co., California

1571 Hadronus arizonensis AOR

1572 Arizona elegans AOR 2005 hr, 0.2 mi W. of RR

1573 Trimorphodon biscutatus DOR 2011 hr, 1.1 mi E of RR

1574 Chionactis occipitalis AOR 2043 hr,  $\approx$  50 m E of RR

11 September SW Bajada of Tucson Mtns., Pima Co., Arizona

1575 Crotalus tigris found on grounds of Arizona-Sonora Desert Museum

24 September S. Bajada of Tucson Mtns., Pima Co., Arizona

1576 Crotalus tigris brought in to Arizona-Sonora Desert Museum

8 July Berkeley, Alameda Co., California

1577 Crotalus viridis Dwight-Derby Trash,  $\approx$  1200 hr



Greene, H.

1986

- 1 Jan No data, long-term captive (gift from E. Ely)
- 1578 Crotalus cerastes ♀ tissue, skin, skeleton
- 25 April Kelbaker Rd., E. side of Granite Mtns., San Bernardino Co., California
- 1579 Crotalus cerastes DOR  $\times 1400$  h, 5.3 mi. S. Caltequand at crest  
0.9 mi. S. Kelso on Kelbaker Rd., San Bernardino Co., California
- 1580 Chionactis occipitalis AOR 1905 hz
- 26 April Donner Camp, NE side of Granite Mtns., San Bernardino Co., California
- 1581 Crotalus mitchelli 785 + 67 mm, 440 g - killed 26 May 1986 <sup>805 + 60 mm</sup> 415 g
- 1582 Sylvilagus - palped from Crotalus mitchelli (snake released,  
1000 + 72 mm, 991 g)
- 1583 Dipodomys - palped from Masticophis flagellum (snake  
released, 1205 + 400, 474 g)
- 27.6 mi S. Baker on Kelbaker Rd., San Bernardino Co., California
- 1584 Pituophis melanoleucus DOR  $\times 1700$  hz
- 27 April Granite Cove, S. side Granite Mtns., San Bernardino Co., California
- 1585 Hypsiglena torquata 15g
- 7 May Between Castle Rock and Alameda Co. line on Corral Hollow Rd.,  
San Joaquin Co., California
- 1586 Masticophis flagellum ruddockii DOR before dusk
- 1587 Crotalus viridis DOR before dusk
- 1588 Crotalus viridis DOR before dusk
- 28 May Pisgah Lava Flow, San Bernardino Co., California
- 1589 Chionactis occipitalis AOR 2048, 0.4 mi. W. of RR tracks 215 + 40 mm, 4.3g
- 1590 Chionactis occipitalis AOR 2133 hz, 1.4 mi. W. of RR tracks, 265 + 54 mm, 9.7g
- 1591 Chionactis occipitalis AOR 2155 hz, 1.2 mi W. of RR tracks, 251 + 54 mm, 9.1g
- 1592 Chionactis occipitalis AOR 2201 hz, 0.1 mi W. RR tracks, 212 + 41 mm, 4.7g



Greene, H.

1986

29 May Pisgah Lava Flow, San Bernardino Co., California

1593 Chionactis occipitalis AOR 2024 hr, 1.5 mi W. RR, 230+46 mm, 6.5 g

1594 Chionactis occipitalis AOR 2100 hr, 1.7 mi W RR, 186+32 mm, 3.0 g

1595 Phyllorhynchus decurtatus AOR 2118 hr, 2.3 mi W. Ludlow 374+34 mm 28.2 g

1596 small bird found dead on lava, midday

30 May 0.4 mi E. Alameda Co. Line on Conal Hollow Rd., San Joaquin Co., California

1597 Crotalus viridis AOR dusk

31 May Pisgah Lava Flow, San Bernardino Co., California

1598 Chionactis occipitalis AOR 0.7 mi W. RR, Coll. C. Luke 230+42 mm, 5.5 g

1599 Chionactis occipitalis AOR 2.0 mi W. RR, Coll. C. Luke, 286+50 mm, 10.2 g

23 May Hastings Natural History Reservation, Carmel Valley, Monterey Co., California

1600 Crotalus viridis Coll. P. A. Kelly 1130 hr 824+45 mm, 565 g

6 June Hastings Natural History Reservation, Carmel Valley, Monterey Co., California

1601 Crotalus viridis Coll. P. Hooze 1015 hr 790 g 1015+67 mm ♂  
Pres. 26 July 1986, sent to China

2 July Pisgah Lava Flow, San Bernardino Co., California

1602 Crotalus cerastes AOR 2144 hr, 1.8 mi. W. RR tracks, palped Dipodomys  
74 g 401+45 mm

3 July 2.5 mi N. Kelso on Kelbaker Rd., San Bernardino Co., California

1603 Crotalus mitchelli active in rocks at 1957 hr 14 g 319+21 mm

21.1 mi N. Kelso on Kelbaker Rd., San Bernardino Co., California

1604 Crotalus cerastes AOR 2046 hr 149 g 523+46 mm

12.8 mi N. Kelso on Kelbaker Rd., San Bernardino Co., California

1605 Arizona elegans AOR 2134 hr 46.5 g 530+87 mm

12.2 mi N. Kelso on Kelbaker Rd., San Bernardino Co., California

1606 Crotalus scutulatus AOR 2138 hr. 47 g 432+33 mm

4 July 17.7 mi. N. Kelso on Kelbaker Rd., San Bernardino Co., California

1607 Pituophis melanoleucus AOR 2117 hr 62 g 599+106



Greene, H.

1986

4 July 4.7 mi. N. Kelso on Kelbaker Rd., San Bernardino Co., California

1608 Bufo elegans AOR 2139 hr 46.8g 585+83 mm  
(by Harris Spring Rd.)

27 July <sup>Stone</sup> Pumice Gap Well, 27.3 mi. N. Bartle, Siskiyou Co., California

1609 Anelysterna macrodactylum

1610 Anelysterna macrodactylum

1611 Anelysterna macrodactylum

1612 Anelysterna macrodactylum

1613 Anelysterna macrodactylum

1614 Anelysterna macrodactylum

1615 Anelysterna macrodactylum

1616 Anelysterna macrodactylum

1617 Anelysterna macrodactylum

1618 Anelysterna macrodactylum

1619 Anelysterna macrodactylum

2.8 mi N. Bartle (Hwy 89) on Harris Spring Rd., Siskiyou Co., California

1620 Chasmodon volutae AOR 2202 hr

11.0 mi N. Bartle (Hwy 89) on Harris Spring Rd., Siskiyou Co., California

1621 Bufo boreas AOR 2235 hr

28 July Grasshopper Flat, 24.1 mi. N. Bartle on Harris Spring Rd., Siskiyou Co., California

1622 Phrynosoma douglasi baskeyi 0945 hr

1623 Phrynosoma douglasi active 0955 hr

29 July N. end of Eagle Lake, ~4.5-5 km (air) N.W. Spalding Tract, Lassen Co., California

1624 Pituophis melanoleucus active 1019 hr

1625 Coluber constrictor under board 1029 hr

1626 Coluber constrictor active 1102 hr

1627 Crotalus viridis active ~1130 hr 100g 541+40 mm

1628 Sceloporus graciosus



Greene, H.

1986

29 July N. end of Eagle Lake, ~4.5-5 km (air) NW Spalding Tract, Lassen Co., California

1629 Sceloporus graciosus

1630 Sceloporus graciosus

1631 Sceloporus graciosus

1632 Sceloporus graciosus

1633 Sceloporus graciosus

1634 Sceloporus graciosus

1635 Sceloporus graciosus

3 August Texas, no other data, captive in Dallas Aquarium  $\geq 15$  years

1636 Macrochelys temminckii received from E. D. Brodie Jr

29 May Gravel Vieja Canyon, ~2 mi NE Jamesburg, Monterey Co., California

1637 Crotalus viridis coll. M. Stanback, found injured

15 August Grasshopper Flat, 24.1 mi N. Battle on Harris Spring Rd., Siskiyou Co., California

1638 Phrynosoma douglassii born in captivity, 1 of 4 from RCS 12040, 14 Aug 86

1639 Phrynosoma douglassii born in captivity, 1 of 4 from HWG 1622, 8 Aug 86

1640 Phrynosoma douglassii born in captivity, 1 of 2 from RCS 12041, 13 Aug 86

1641 Phrynosoma douglassii born in captivity, 1 of 3 from HWG 1623, 6 Aug 86



Greene, H.

1987

- 19 May ≈ 1 mi N. California City on Newallia Rd., Kern Co., California  
1642 Masticophis flagellum fresh DOR at 1000 hr
- ≈ 5 mi N. California City, Kern Co., California  
1643 Phrynosoma platyrhinos active at ≈ 1100 hr 22g  
Pisgah Lava Flow, San Bernardino Co., California
- 1644 Masticophis flagellum active at ≈ 1600 hr coll. C. Luke 280g  
7.9 mi W. Judlow, San Bernardino Co., California
- 1645 Chionactis occipitalis DOR ≈ 2100 hr orange secondary bands on yellow  
3.2 mi W. Judlow, San Bernardino Co., California
- 1646 Arizona elegans DOR ≈ 2100 hr
- 20 May 1.3 mi W. of Vulcan Mine, Providence Mtns., San Bernardino Co., California  
1647 Crotaphytus insularis basking 1420 hr 31g 98+207 mm  
0.4 mi E. of Vulcan Mine, Providence Mtns., San Bernardino Co., California
- 1648 Pituophis melanobucus active 1637 hr  
1.0 mi E. of Vulcan Mine, Providence Mtns., San Bernardino Mtns, California
- 1649 Xantusia vigilis under yucca log  
≈ 3 mi. N. Hwy 66 on Kelbaker Rd., San Bernardino Co., California
- 1650 Coleonyx variegatus AOR
- 1651 Coleonyx variegatus AOR
- 1652 Coleonyx variegatus AOR
- Hole in the Wall, San Bernardino Co., California
- 1653 Sauromalus obesus under small caprock el. ≈ 1200 m
- 12 May Coral Hollow Rd. at Site 300, San Joaquin co., California  
1654 Elgaria multicarinata AOR at dusk (2000 hr)

S., Arizona



Greene, H.

1987

19 May

≈ 1 mi N. California City on Nevada Rd., Kern Co., California

1642

Masticophis flagellum fresh DOR at 1000 hr

≈ 5 mi N. California City, Kern Co., California

1643

Phrynosoma platyrhinos active at ≈ 1100 hr 22g

Pisgah Lava Flow, San Bernardino Co., California

1644

Masticophis flagellum active at ≈ 1600 hr coll. C. Luke 280g

7.9 mi W. Judlow, San Bernardino Co., California

1645

Chionactis occipitalis DOR ≈ 2100 hr orange secondary bands on yellow

3.2 mi W. Judlow, San Bernardino Co., California

1646

Arizona elegans DOR ≈ 2100 hr

20 May

1.3 mi W. of Vulcan Mine, Providence Mtns., San Bernardino Co., California

1647

Crotaphytus insularis basking 1420 hr 31g 98+207 mm

0.4 mi E. of Vulcan Mine, Providence Mtns., San Bernardino Co., California

1648

Pituophis melanoleucus active 1637 hr

1.0 mi E. of Vulcan Mine, Providence Mtns., San Bernardino Mtns, California

1649

Xantusia vigilis under yucca log

≈ 3 mi. N. Hwy 66 on Kelbaker Rd., San Bernardino Co., California

1650

Coleonyx variegatus AOR

1651

Coleonyx variegatus AOR

1652

Coleonyx variegatus AOR

Hole in the Wall,

San Bernardino Co., California

1653

Sauromalus obesus under small caprock el. ≈ 1200 m

12 May

Coral Hollow Rd. at Site 300, San Joaquin co., California

1654

Elgaria multicarinata AOR at dusk (2000 hr)



Heine, H.  
1987

- 31 August 3.2 mi S. Mile Wide Rd. on Sandario Rd., Pima Co., Arizona  
1655 Bufo cognatus AOR 1936 hr
- 2.7 mi. S. Mile Wide Rd. on Sandario Rd., Pima Co., Arizona  
1656 Crotalus cerastes AOR 1948 hr
- 0.5 mi. E. Mile Wide Rd. on Kinney Rd., Pima Co., Arizona  
1657 Crotalus atrox AOR 2012 hr 645+55 mm, 139 g (+prey) (1659)
- 0.6 mi E. Desert Museum on Kinney Rd., Pima Co., Arizona  
1658 Crotalus tigris AOR/DOR 2045 hr. 565+53 mm, 180 g
- 0.5 mi E. Mile Wide Rd. on Kinney Rd., Pima Co., Arizona  
1659 Cnemidophorus somori 13 g (prey of 1657)
- 1 September Mile Wide Rd between Kinney Rd and Sandario Rd, Pima Co., Arizona  
1660 Crotalus atrox AOR 1918 hr 945+81 mm, 555 g
- 1661 Crotalus atrox DOR 1920 hr 860+53 mm, 245 g
- Sandario Rd. at jct. San Joaquin Rd., Pima Co., Arizona  
1662 Lampropeltis getulus AOR/DOR 1946 hr 540+90 mm, 48 g
- 0.5 mi SE of Mile Wide Rd. on San Joaquin Rd., Pima Co., Arizona  
1663 Bufo alvarius AOR/DOR 1951 hr SV 150 mm, 345 g
- 2 September 3.6 mi N. Carrero Loma Alta on Old Spanish Trail, Pima Co., Arizona  
1664 Rhinocheilus lecontei DOR  $\approx$  2100 hr
- 3 September 2.8 mi NW Hwy 80 on State Line Rd to Portal, Cochise Co., Arizona  
1665 Terrapene ornata AOR 1800 hr CL  $\approx$  80 mm 153 g
- 21.3 mi S. State Line on Hwy 80, Cochise Co., Arizona  
1666 Crotalus scutulatus AOR 1828 hr 738+51 mm 330 g
- 20.3 mi S. State Line on Hwy 80, Cochise Co., Arizona  
1667 Crotalus scutulatus AOR 1904 hr 693+53 mm, 217 g
- 21.7 mi S. State Line on Hwy 80, Cochise Co., Arizona  
1668 Crotalus scutulatus DOR 1909 hr



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- 3 September 22.1 mi S. State line on Hwy 80, Cochise Co., Arizona  
1669 Rhinocheilus lecontei DOR 1959 hr
- 4 September 21.3 mi S. State line on Hwy 80, Cochise Co., Arizona  
1670 Thamnophis marciarius DOR 1912 hr  
1671 Thamnophis marciarius AOR 1958 hr 447+110 mm, 33g  
20.4 mi. S. State line on Hwy 80, Cochise Co., Arizona  
1672 Thamnophis marciarius AOR 1932 hr 603+159 mm, 79g  
3.6 mi S. State line on Hwy 80, Cochise Co., Arizona  
1673 Lampropeltis getulus AOR 2027 hr
- 5 September 24.6 mi. S. State line Rd. on Hwy 80, Cochise Co., Arizona  
1674 Terrapene ornata AOR 1130 hr CL  $\approx$  104 mm 325g  
7.1 mi S. State line on Hwy 80, Cochise Co., Arizona  
1675 Crotalus scutulatus AOR 2038 hr 255+20 mm, 12g
- 6 September Cave Creek Canyon, Portal Rd. at Cave Creek Ranch, Cochise Co., Arizona  
1676 Diadophis punctatus DOR 1845 hr <sup>477+93 mm</sup> coll. 3 Sept 87, R.N. Johnson 19g  
Cave Creek Canyon, 3 mi N. Portal, Cochise Co., Arizona  
1677 Crotalus molossus DOR day coll. T. Moisi 7 July 1987  
1678 Crotalus molossus DOR day coll. T. Moisi 7 July 1987  
1 mi E. Portal on Portal Rd., Cochise Co., Arizona  
1679 Phrynosoma cornutum DOR night coll. B. Tomberlin 2 August 87  
1680 Rhinocheilus lecontei DOR night coll. B. Tomberlin 2 August 1987  
Rodeo, Hidalgo Co., New Mexico  
1681 Thamnophis marciarius DOR  $\approx$  2000 hr coll. B. Tomberlin 12 July 1987  
1682 Lampropeltis getulus DOR  $\approx$  2000 hr coll. B. Tomberlin 12 July 1987  
23 mi. S. Armas on Hwy 338, Hidalgo Co., New Mexico  
1683 Crotalus viridis DOR  $\approx$  2100 hr coll. B. Tomberlin 25 July 1987



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6 September Rodeo, Hidalgo Co., New Mexico

1684 Thamnophis marciams DOR <sup>2000hr</sup> coll. B. Tomberlin 12 July 1987

1 mi E. Portal on Portal Rd., Cochise Co., Arizona

1685 Thamnophis cyrtopsis DOR night coll. B. Tomberlin 2 August 1987

7.6 mi. S. State Line on Hwy 80, Cochise Co., Arizona

1686 Crotalus scutulatus AOR/DOR 1844hr

23.7 mi S. State Line on Hwy 80, Cochise Co., Arizona

1687 Crotalus scutulatus DOR 1948hr

10 September ≈ 6 mi. E. Arinas on Hwy 9, Hidalgo Co., New Mexico

1688 Crotalus viridis AOR coll. B. Tomberlin

11 September 0.3 mi S. Portal on Portal Rd., Cochise Co., Arizona

1689 Micruroides euryxanthus AOR 1859hr 395+25 mm 12.5g

0.1 mi S. Portal on Portal Rd., Cochise Co., Arizona

1690 Crotalus atrox AOR/DOR 1908hr 292+23 mm 18g

12 September Cemetery at Paradise, Cochise Co., Arizona

1691 Masticophis bilineatus coll. T. Snell 6 September 1987

10 mi N. Douglas on Hwy 80, Cochise Co., Arizona

1692 Masticophis flagellum DOR coll. B. Tomberlin Aug 15, 1987

21 mi N. Douglas on Hwy 80, Cochise Co., Arizona

1693 Heterodon nasicus DOR coll. B. Tomberlin August 15, 1987

4 mi. E. Portal on Portal Rd., Cochise Co., Arizona

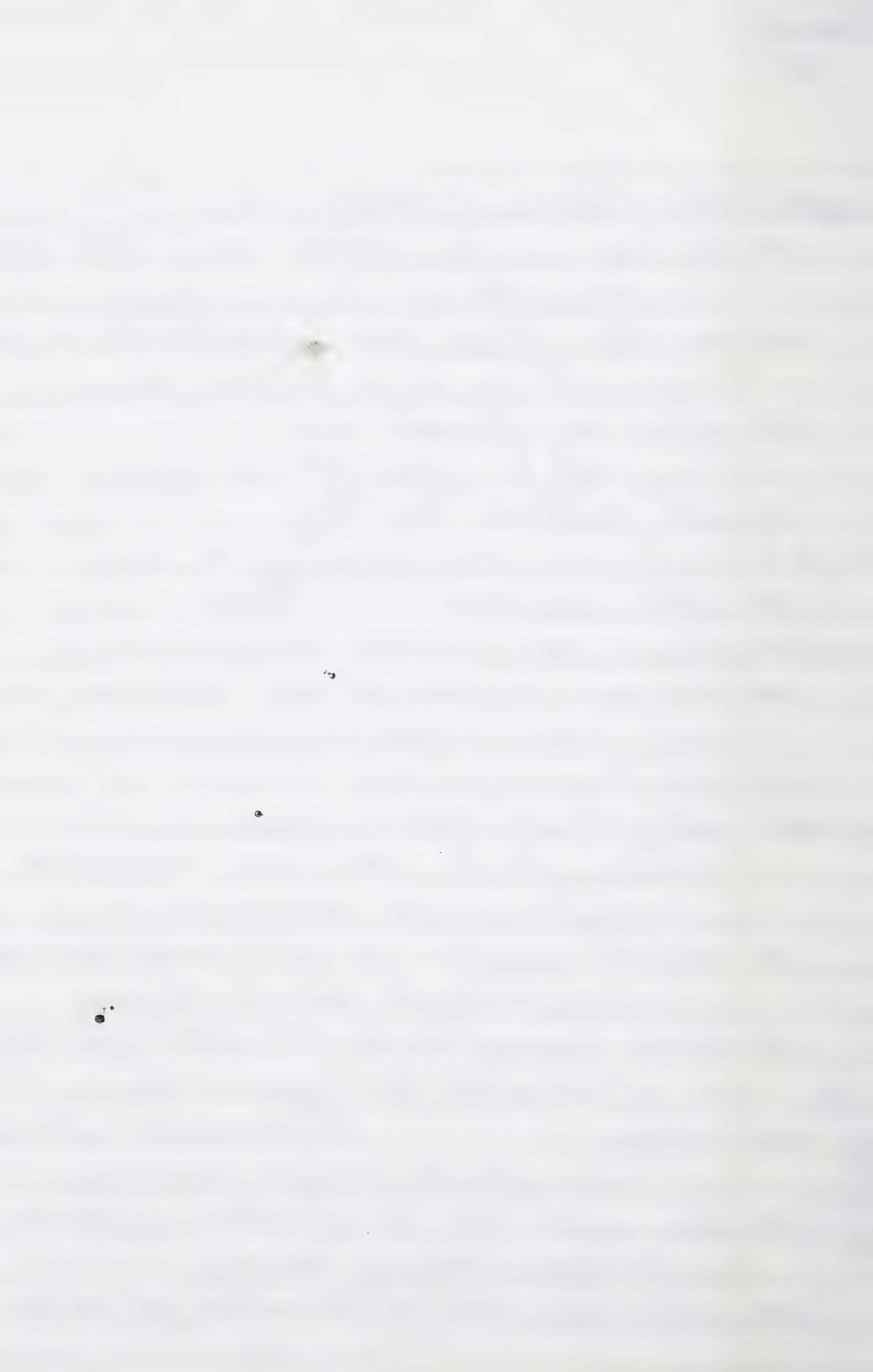
1694 Salvadora <sup>2000hr</sup> DOR coll. B. Tomberlin Sept. 10, 1987

1 mi S. Arinas on Hwy 338, Hidalgo Co., New Mexico

1695 Crotalus viridis DOR coll. B. Tomberlin August 6, 1987

Hwy 80 at Apache, Cochise Co., Arizona

1696 Crotalus atrox DOR coll. B. Tomberlin July 24, 1987



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- 13 September 2 mi. E. Portal on Portal Rd., Cochise Co., Arizona
- 1697 Pituophis melanoleucus DOR coll. B. Tomberlin Sept. 9, 1987  
1 mi. E. Portal on Portal Rd., Cochise Co., Arizona
- 1698 Arizona elegans DOR coll. B. Tomberlin September 11, 1987  
Paradise, Cochise Co., Arizona
- 1699 Cnemidophorus coll. T. Snell July 29, 1987  
20.8 mi. S. State Line on Hwy 80, Cochise Co., Arizona
- 1700 Crotalus scutulatus AOR 1846 hr 472 + 25 + ? 69g  
21.9 mi. S. State Line on Hwy 80, Cochise Co., Arizona
- 1701 Crotalus scutulatus DOR 1850 hr  
18.8 mi S. State Line on Hwy 80, Cochise Co., Arizona
- 1702 Rhinocheilus lecontei AOR 1901 hr. 654 + 104 mm 145g  
5.1 mi SE. Portal on Portal Rd., Cochise Co., Arizona
- 1703 Rhinocheilus lecontei AOR 2000 hr 647 + 114 mm 155g  
20.5 mi E. Portal on Portal Rd., Cochise Co., Arizona
- 1704 Micruroides euryxanthus AOR coll. B. Tomberlin August, 1987  
Portal, Cochise Co., Arizona
- 1705 Micruroides euryxanthus AOR coll. B. Tomberlin Sept 6, 1987



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1 December La Selva Biological Station, Prov. Heredia, Costa Rica

1700 Micromys alleni active  $\approx 0700$  hr 584+109, 20g

2 December La Selva Biological Station, Prov. Heredia, Costa Rica

1701 Bothrops asper dead on trail  $\approx 1900$  hr 295+48 mm, 12g

~~1702~~ La Guaria, Puerto Viejo de Sarapiquí, Prov. Heredia, Costa Rica

1702 Emilia sclateri DOR

3 December La Selva Biological Station, Prov. Heredia, Costa Rica

1703 Bothrops asper active  $\approx 2130$  hr 29 November 1987 1395+173 mm 1.1 kg

4 December La Selva Biological Station, Prov. Heredia, Costa Rica

1704 Bothrops asper 1721 + 225 mm, 2.15 kg

17 December La Selva Biological Station, Prov. Heredia, Costa Rica

1705 Imantodes cenchoa regurgitated <sup>MS</sup> by Leptodactylus pentadactylus  $\approx 2030$  hr 605+291 mm

20 December La Selva Biological Station, Prov. Heredia, Costa Rica

1706 Celilia celilia coll. 3 Dec. 1987, 482+101 mm, 26.5g

1707 Oxyrhopus petola coll. 13 Dec 1987, 375+82 mm, 12g, 2105 hr.

1708 Imantodes cenchoa coll. 14 Dec. 1987, 603+261 mm, 10.5g

1709 Coralus annulatus coll. 14 Dec. 1987, 465+92 mm, 18.5g

1710 Imantodes inornatus coll. 14 Dec. 1987, 707+115+? mm, 36g, <sup>2015</sup> hr

1711 Rhadinaea decorata coll. 17 Dec. 1987, 253+50+? mm, 7g, 1600 hr

1712 Bothrops nasutus coll. 18 Dec 1987, 28.5g

1713 Imantodes cenchoa coll. 18 Dec. 1987, 424+190 mm, 3.9g

1714 Imantodes inornatus coll. 19 Dec 1987, 2128 hr.

1715 Hyla elaeochroa coll. 19 Dec. 1987, 1.8g, regurgitated by HWG 1714

1716 Hyla elaeochroa

1717 Hyla elaeochroa

1718 Hyla elaeochroa

1719 Hyla elaeochroa

Regurgitated by Imantodes inornatus (not collected, 640+241 mm, 25.7g); three weighed 1.8, 1.8, 2.0 g



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20 December La Selva Biological Station, Prov. Heredia, Costa Rica

1720 Hyla elaeochroa } Regurgitated by Imantodes inornatus (not collected, 741+283mm,

1721 Hyla elaeochroa } 37.3g, ♀; 2.1, 2.2g. 2255 hr.

21 December La Selva Biological Station, Prov. Heredia, Costa Rica

1722 Leptodactylus pentadactylus 0955 hr., 2.25g, regurgitated by <sup>Leptotyphlops</sup> ~~Deinotyphlops~~

28 December La Selva Biological Station, Prov. Heredia, Costa Rica

1723 Oxyrhopus petola coll. 23 Dec. 1987 (night), 47.4g

1724 Xenodon rhabdocephalus 0945 hr., 250+45 mm, 12.5g

1725 Leptodactylus pentadactylus regurgitated by HWG 1724, 1.9g

29 December La Selva Biological Station, Prov. Heredia, Costa Rica

1726 Bothrops nasutus 2010 hr., 161+17 mm, 4.3g

31 December La Guaria Annex, La Selva Biological Station, Prov. Heredia, Costa Rica

1727 Ninia sebae coll. ~15 December 1987, B. Paniagua



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3 January La Selva Biological Station, Prov. Heredia, Costa Rica

1728 Leptodeira annulata coll. 2 Jan 1988, 1855h, 635+158 mm, 109g

1729 Scaphiodontophis venustissimus 1312h, 217+130 mm, 9g

8 January Concepción de Puriscal, Prov. San José, Costa Rica

1730 Bothrops schlegelii (gold), rec'd. at D.C.P. 4 Nov. 1987

Penshurst, Prov. Limón, Costa Rica

1731 Bothrops schlegelii (peach), rec'd at D.C.P. 8 Jan. 1988

San Ramón, Prov. Alajuela, Costa Rica

1732 Bothrops nummifer } born 12 Nov. 1987 in

1733 Bothrops nummifer } D.C.P.

3 February U.C. Bot. Garden, Strawberry Canyon, Berkeley, Alameda Co., California

1734 Crotalus viridis 12.5g, prey (S. occidentalis) 8g

15 March 5 mi S. Rucker Cyn Rd on Hwy 80, Cochise Co., Arizona

1735 Sistrurus catenatus <sup>BRT 198</sup> coll. B. Tonburlin & C. M. Bogert July 15, 1986

17 March Amboy Lava Flow, San Bernardino Co., California

1736 Crotalus cerastes AOR 2021 PM coll. C. Luke

23 March 4 mi. S. I40 on Kelbaker Rd., San Bernardino Co., California

1737 Salvadora hexalepis AOR day coll. C. Luke

26 March Richmond Field Station, Contra Costa Co., California

1738 Pituophis melanoleucus found dead in drift fence

1 April Coral Hollow Rd., Alameda Co., California

1739 Pituophis melanoleucus AOR/DOR x 1730h

1740 Pituophis melanoleucus AOR/DOR x 1730h

31 July 23.9 mi. SW State Line on Hwy 80, Cochise Co., Arizona

1741 Tamrappelis gutulus AOR 20:13h 390+23+? mm 20.6g <sup>pres. August 15, 1988</sup>

22.0 mi SW State Line on Hwy 80, Cochise Co., Arizona

1742 Crotalus scutulatus AOR 20:28h 386+29 mm 37g



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- 31 July 21.6 mi SW State Line on Hwy 80, Cochise Co., Arizona  
1743 Crotalus scutulatus DOR/AOR 2044hr 695+46 mm 215g
- 1 August 2 mi N of Portal Rd on Hwy 80, Hidalgo Co., New Mexico  
1744 Lampropeltis getulus DOR, no date, B. Torberlin & T. Snell  
1 mi W. Portal on Portal Rd., Cochise Co., Arizona  
1745 Salvadora grahamiae DOR 29 April 1988, B. Torberlin  
1 mi SE Portal, Cochise Co., Arizona  
1746 Micruroides euryxanthus dug up by backhoe 1 June 1988, T. Snell  
8 mi. E. Animas on Hwy 9, Hidalgo Co., New Mexico  
1747 Crotalus viridis DOR 17 July 1988 B. Torberlin, T. Snell  
Apache, Cochise Co., Arizona  
1748 Crotalus scutulatus DOR 23 July 1987 B. Torberlin  
Hwy 80 at Rodeo, Hidalgo Co., New Mexico  
1749 Crotalus scutulatus DOR 21 August 1987, B. Torberlin  
Hwy 9 near Hwy 80, Hidalgo Co., New Mexico  
1750 Crotalus scutulatus DOR 17 July 1988, B. Torberlin, T. Snell  
3 mi E. Hwy 80 on Hwy 9, Hidalgo Co., New Mexico  
1751 Crotalus scutulatus DOR 17 July 1988, B. Torberlin, T. Snell  
1 mi. E. Hwy 80 on Hwy 9, Hidalgo Co., New Mexico  
1752 Crotalus scutulatus DOR 19 July 1988, B. Torberlin, T. Snell  
Portal Rd. at State Line Rd., Cochise Co., Arizona  
1753 Crotalus scutulatus AOR 2025hr 349+25 mm 43g (incl. prey)
- 3 August South Fork, Cave Creek Canyon, Chiricahua Mtns., Cochise Co., Arizona  
1754 Lampropeltis pyronelana active 1500hr 100g
- 4 August Near Ash Spring, Chiricahua Mtns., Cochise Co., Arizona  
1755 Crotalus molossus ♀ 305g ≈ 1330hr } found together  
1756 Crotalus molossus ♂ 532g ≈ 1330hr } pres Sept 5, 1996



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August 4 ~ 5 mi E. Portal on Portal Rd., Cochise Co., Arizona

1757 Bufo debilis DOR/AOR ~2045 hr

3.4 mi E. Portal on Portal Rd., Cochise Co., Arizona

1758 Bufo debilis AOR 2100 hr

2.3 mi E. Portal on Portal Rd., Cochise Co., Arizona

1759 Thamnophis cystops AOR 2106 hr. 510+182 mm 55g

Cave Creek Canyon, 2.8 mi W. Portal on Portal Rd., Cochise Co., Arizona

1760 Rana chiricahuensis AOR ~2145 hr

Cave Creek Canyon, 1.5 mi W. Portal on Portal Rd., Cochise Co., Arizona

1761 Rana chiricahuensis AOR ~2145 hr

August 5 2.0 mi. E. Portal on Portal Rd., Cochise Co., Arizona

1762 Crotalus scutulatus fresh DOR 1950 hr.

August 6 0.7 mi. E. Portal on Portal Rd., Cochise Co., Arizona

1763 Bufo debilis ♂ AOR 2045 hr

August 8 12.3 mi NW Sells on Hwy 86, Pima Co., Arizona

1764 Crotalus atrox DOR/AOR ~~2135~~ 2135 hr.

8.7 mi NW Sells on Hwy 86, Pima Co., Arizona

1765 Crotalus cerastes DOR <sup>2</sup>2230 hr

6.8 mi NW Sells on Hwy 86, Pima Co., Arizona

1766 Rhinocheilus deconlei AOR 2237 hr 540+82 mm 75g

4.4 mi NW Sells on Hwy 86, Pima Co., Arizona

1767 Crotalus tigris AOR 2244 hr

187g

3.2 mi W. Sells on Hwy 86, Pima Co., Arizona

1768 Crotalus scutulatus DOR 2250 hr

5.9 mi E. Sells on Hwy 86, Pima Co., Arizona

1769 Bufo retiformis AOR 2309 hr



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August 9

2.0 mi N. Paradise on Rd. to San Simon, Cochise Co., Arizona

1770

Phrynosoma douglasi AOR/DOR 1427 hr

Cave Creek Canyon, Chiricahua Mtns., Cochise Co., Arizona

1771

Crotalus molossus AOR  $\approx$  1800 hr 842 + 53 mm 375g

1772

Crotalus molossus AOR  $\approx$  1800 hr 867 + 66 mm 350g

coll. G. Morker  
found on road  
together at  
Stewart Canyon

5.6 mi. SW State Line Rd on Hwy 80, Cochise Co., Arizona

1773

Pituophis melanoleucus DOR 2032 hr.

22.0 mi. SW State Line Rd. on Hwy 80, Cochise Co., Arizona

1774

Crotalus scutulatus AOR/DOR 2042 hr.

4.0 mi. SW Apache, Cochise Co., Arizona

1775

Crotalus atrox AOR 2/22 hr. 780 + 65 mm 346g  
(collected feces)

August 10

$\approx \frac{1}{2}$  air mi. E. Barfoot Lookout, Chiricahua Mtns., Cochise Co., Arizona

1776

Crotalus molossus under rock 1135 hr 894 + 70 mm 555g  
regurgitated 165 g cottontail

$\approx \frac{1}{2}$  air mi. E. Barfoot Lookout Chiricahua Mtns., Cochise Co., Arizona

1777

Crotalus price ♂ 368 + 36 mm, 53 g, under tin at 1225 hr, released  
(regurgitated Sceloporus jarrovi swallowed head first, prey saved)

100 m W. of Portal Store, Cochise Co., Arizona

1778

Phrynosoma modestum AOR 1345 hr. 68 + 27 mm 14g

$\approx \frac{1}{2}$  mi. E. Portal, Cochise Co., Arizona

1779

Masticophis bilineatus AOR  $\approx$  0900 hr 925 + 391 mm 190g  
coll. B. Tomberlin

20.5 mi SW State Line on Hwy 80, Cochise Co., Arizona

1780

Sistrurus catenatus DOR 1944 hr

18.9 mi SW State Line on Hwy 80, Cochise Co., Arizona

1781

Scaphiopus couchii AOR 2017 hr

1.3 mi SW State Line on Hwy 80, Cochise Co., Arizona

1782

Arizona elegans DOR 2035 hr.



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August 10 2.0 mi E. Portal on Portal Rd., Cochise Co., Arizona

1783 Crotalus molossus AOR 2059 hr 740+54 mm 150g

1.3 mi W. Portal on Portal Rd., Cochise Co., Arizona

1784 Scaphiopus multiplicata AOR  $\approx$  2115 hr

August 11 3.9 mi SW Portal, Cave Creek Canyon, Chiricahua Mtns., Cochise Co., Arizona

1785 Lampropeltis pyromelana DOR 1810 hr. coll. G. Merker, August 8, 1988

5.2 rd. mi. SW Portal, Cave Creek Canyon, Chiricahua Mtns., Cochise Co., Arizona

1786 Trimorphodon biscutatus ~~no~~ in rock crevice coll. G. Merker August 13, 1987 1240 hr

19.9 mi SW State Line on Hwy 80, Cochise Co., Arizona

1787 Thamnophis masicanus AOR 1938 hr 550+49+? mm 74g

20.8 mi. SW State Line on Hwy 80, Cochise Co., Arizona

1788 Sistrurus catenatus AOR 1959 hr. 55g

22.3 mi SW State Line on Hwy 80, Cochise Co., Arizona

1789 Crotalus scutulatus AOR 2015 hr 647+47 mm 190g

22.2 mi SW State Line on Hwy 80, Cochise Co., Arizona

1790 Rhinocheilus lecontei AOR 2051 hr 538+90 mm 75.5g ~~74g~~

regurgitated 10 lizard eggs, fresh wt.  $\approx$  0.4g each

August 12 23.6 mi SW State Line on Hwy 80, Cochise Co., Arizona

1791 Crotalus atrox AOR 2009 hr. 760+70 mm 300g

21.3 mi SW State Line on Hwy 80, Cochise Co., Arizona

1792 Crotalus atrox AOR 2056 hr 730+57 mm 306g

regurgitated mouse, swallowed head-first, 27+g

August 13 Cave Creek Canyon Rd at SWRS, Chiricahua Mtns., Cochise Co., Arizona

1793 Diadophis punctatus AOR  $\approx$  1900 hr 540+100 mm, 22g regurgitated Hypsiglena coll. T. Turmezei

0.5 mi E. Hwy 80 on Hwy 9, Hidalgo Co., New Mexico

1794 Crotalus scutulatus AOR 2000 hr coll. August 11, 1988, B. Tomberlin 252g



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August 14 Barfoot Lookout, Chiricahua Mtns., Cochise Co., Arizona

1795 Crotalus pricei active 0900 hr. 530+48 mm, 108 g  
(held 24 hrs re my permit, presented to A.S.D.M.)

Turkey Pen Canyon, Chiricahua Mtns., Cochise Co., Arizona

1796 Crotalus lepidus TL  $7\frac{3}{4}$ " <sup>1650 hr</sup>, regurgitated Scelopendra <sup>swallowed</sup> head-first  
(snake released, stomach contents saved) coll. T. Sivitai

1797 Crotalus lepidus ♀ <sup>≈ 1700 hr</sup> 335+21 mm, 27 g <sup>regurgitated</sup> Sceloporus <sup>swallowed h-f.</sup> jansoni  
(snake released, stomach contents saved) coll. B. Torberlin

≈ 28 air mi. N. Douglas, Cochise Co., Arizona

1798 Crotalus scutulatus DOR/AOR 1942 hr 600+52 mm 185 g

21.9 mi SW State Line on Hwy 80, Cochise Co., Arizona

1799 Rhinocheilus lecontei AOR 2057 hr 685+114 mm 140 g <sup>regurgitated</sup> Gerrhonotus <sup>swallowed</sup> head-first

22.3 mi SW State Line on Hwy 80, Cochise Co., Arizona

1800 Sistrurus catenatus AOR 2039 hr

21.1 mi SW State Line on Hwy 80, Cochise Co., Arizona

1801 Crotalus scutulatus DOR 2052 hr

10-15 mi NE Douglas on Hwy 80, Cochise Co., Arizona

1802 Crotalus molossus DOR 1035+74 mm, 200 g <sup>coll. T. Snell, T. Sinclair</sup> regurgitated rat, <sup>swallowed</sup> head first

1/2 mi N. Granite Gap on Hwy 80, Hidalgo Co., New Mexico

1803 Crotalus viridis x scutulatus DOR, coll. B. Torberlin

≈ 10 mi NNA Douglas on Hwy 666, Cochise Co., Arizona

1804 Sistrurus catenatus DOR ≈ 2200 hr

1/4 mi SW Portal on Portal Rd., Cochise Co., Arizona

1805 Salvadora grahamiae DOR coll. B. Torberlin, T. Snell

1 mi. E. Portal on Portal Rd., Cochise Co., Arizona

1806 Bufo elegans DOR coll. B. Torberlin, T. Snell, August 13, 1988



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August 15 7 mi E. Hwy 80 on Hwy 9, Hidalgo Co., New Mexico

1807 Notiosorex crawfordi coll. B. Tomberlin, T. Snell, August 8, 1988

1808 Phrynosoma cornutum coll. B. Tomberlin, T. Snell, 1988

Paradise, Chiricahua Mtns., Cochise Co., Arizona error - same locality

1809 ~~shrew~~ Notiosorex coll. B. Tomberlin, T. Snell, May 9, 1988

≈ 1 mi W. Portal on Cave Creek Rd., Cochise Co., Arizona

1810 Crotalus molossus DOR ≈ 2000 coll. T. Snell August 13, 1988 <sup>1060 + 85 mm 920g</sup>

≈ 5 mi NE Douglas on Hwy 80, Cochise Co., Arizona

1811 Masticophis flagellum DOR coll. H. Jawter 1270 + 411 mm 565g

≈ 5-15 mi NNW Douglas on Hwy 666, Cochise Co., Arizona

1812 Heterodon nasicus DOR coll. T. Snell, T. Sinclair, August 14, 1988

1813 Lampropeltis getulus DOR coll. T. Snell, T. Sinclair, August 14, 1988

1814 Thamnophis maschianus DOR coll. T. Snell, T. Sinclair, August 14, 1988

West Peak, Graham Mtns., Graham Co., Arizona

1815 Phrynosoma douglasi el. 8500' coll. T. Sinclair

1 mi. N Hwy 9, 9 mi W. Animas, Hidalgo Co., New Mexico

1816 Phrynosoma cornutum } coll. B. Tomberlin, T. Snell

1817 Phrynosoma cornutum } August 13, 1988

Hwy 9, Between Hwy 80 and Animas, Hidalgo Co., New Mexico

1818 Pituophis melanoleucus DOR coll. B. Tomberlin, T. Snell <sup>May 25, 1988</sup>

4 mi N Rodeo on Hwy 80, Hidalgo Co., New Mexico

1819 Lampropeltis getulus DOR coll. B. Tomberlin, T. Snell <sup>June 20, 1988</sup>

4 mi E Hwy 80 on Hwy 9, Hidalgo Co., New Mexico

1820 Thamnophis maschianus } DOR, coll. B. Tomberlin,

1821 Thamnophis maschianus } T. Snell, 1988

Between Hwy 181 and Hwy 80 on Hwy 666, Cochise Co., Arizona

1822 Crotalus scutulatus DOR coll. T. Snell, T. Sinclair, August 14, 1988



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- August 16 Hwy 181, 1-13 mi E. Hwy 666, Cochise Co., Arizona
- 1823 Crotalus scutulatus } DOR coll. T. Snell, T. Sinclair  
1824 Crotalus scutulatus } August 14, 1988
- August 17 Mile Wide Rd. at Sandario Rd., Pima Co., Arizona
- 1825 Masticophis flagellum DOR/AOR 0940 hr  
6400 N. Wilcox, Tucson, Pima Co., Arizona
- 1826 Heloderma suspectum rec'd from A.S.D.M., coll. G. Procter  
Portal, Cochise Co., Arizona July 24, 1988  
pres. August 21, 1988
- 1827 Tantilla yagui coll. B. Tomberlin 854 June 1988
- August 19 Portal, Cochise Co., Arizona
- 1828 Crotalus atrox 336 + 24 mm, <sup>resurrected</sup> Perognathus 7.0 + ? g, 35.6g, not saved coll. B. Tomberlin
- August 25 6 mi E. Tome, Valencia Co., New Mexico
- 1829 Sistrurus catenatus no date or collector, rec'd from Brian Smith July 1988
- September 8 1.1 mi E. Portal, Cochise Co., Arizona
- 1830 Micruroides euryxanthus AOR 1900 hr 5g
- 22.1 mi SW State Line on Hwy 80, Cochise Co., Arizona
- 1831 Sistrurus catenatus AOR 1939 hr ♂ 281 + 38 mm 20.3g
- 0.1 mi E. Portal, Cochise Co., Arizona
- 1832 Micruroides euryxanthus AOR 2157 hr 14.5g
- September 9 ≈ 5 mi. N. Portal on Paradise Rd. Cochise Co., Arizona
- 1833 Diadophis punctatus AOR ≈ 1730 hr, coll. T. Snell 12g
- 1.1 mi NW Portal, Cochise Co., Arizona
- 1834 Phrynosoma cornutum AOR 1800 hr 80g
- 5.3 mi E Portal, Cochise Co., Arizona
- 1835 Rhinocheilus lecontei AOR 1912 hr 75g
- 0.3 mi. SW State Line on Hwy 80, Cochise Co., Arizona
- 1836 Heterodon nasicus DOR 1920 hr



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- September 9 2 mi. E. Portal, Cochise Co., Arizona  
1837 Crotalus atrox AOR after dark coll. B. Tomberlin  
4 mi E. of Hwy 80 on Hwy 9, Hidalgo Co., New Mexico  
1838 Tantilla nigriceps coll. B. Tomberlin & T. Snell, August 3, 1988, DOR  
2 mi W. Portal on Portal Rd., Cochise Co., Arizona  
1839 Hypsiglena torquata DOR coll. T. Snell, July 21, 1988  
3 mi W. Portal on Paradise Rd., Cochise Co., Arizona  
1840 Phrynosoma douglasii DOR coll. T. Snell, August 6, 1988  
Hwy 9 at Hwy 80, Hidalgo Co., New Mexico  
1841 Crotalus scutulatus DOR coll. B. Tomberlin, September 10, 1988  
3 mi. S. Rodeo on Hwy 80, Cochise Co., Arizona  
1842 Thamnophis marciatus DOR coll. B. Tomberlin, T. Snell, August 3, 1988  
2 mi. S. Hwy 9 on Hwy 80, Hidalgo Co., New Mexico  
1843 Crotalus scutulatus DOR coll. B. Tomberlin, T. Snell, July 19, 1988  
2 mi. W. Animas on Hwy 9, Hidalgo Co., New Mexico  
1844 Crotalus viridis DOR coll. B. Tomberlin, T. Snell, August 4, 1988  
2 mi. E. Hwy 80 on Hwy 9, Hidalgo Co., New Mexico  
1845 Salvadora hexalepis DOR coll. B. Tomberlin, T. Snell, June 21, 1988  
6 mi S. State Line on Hwy 80, Cochise Co., Arizona  
1846 Lampropeltis getulus DOR coll. B. Tomberlin, T. Snell, July 4, 1988  
3 mi. S. Hachita on Hwy 81, Grant Co., New Mexico  
1847 Crotalus viridis DOR coll. T. Snell, July 25, 1988  
6 mi. W. Animas on Hwy 9, Hidalgo Co., New Mexico  
1848 Crotalus atrox DOR coll. B. Tomberlin, T. Snell, August 1, 1988  
October 11 Playa Blanca, Península de Osa, Prov. Puntarenas, Costa Rica  
1849 Orthogeomys underwoodi coll. D. K. Itoerneau, August 31, 1988



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1988

October 14 ½ mi E. Portal on San Simon Rd., Cochise Co., Arizona

1850 Thamnophis cyrtopsis } coll. AOR together, B. R. Torberlin,  
1851 Thamnophis cyrtopsis } October 7, 1988

October 15 1 mi W. Portal, Cochise Co., Arizona

1852 Pituophis melanoleucus AOR 1620 hr

2.8 mi W. Portal on Paradise Rd., Cochise Co., Arizona

1853 Crotalus molossus AOR coll. B. Torberlin, & October 1, 1988

October 27 Berkeley, Alameda Co., California

1854 Crotalus viridis coll. September 12, 1978, Jct. Prospect & Channing Sts.

December 7 Barro Colorado Island, Gatun Lake, Panama

1855 Polychrus gutturosus coll. J. B. Losos, <sup>on a log at 40 m, next</sup> to canopy tower, PM.

December 23 2.2 mi NE Lindale on FM 2710, Smith Co., Texas

1856 Lampropeltis calligaster AOR/DOR X/1330 hr



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1989

- January 22 200 yds. E. Hwy 580 on Grant Line Rd., Alameda Co., California
- 1857 Masticophis flagellum DOR, coll. G. Beaman, grassland and rocks  
Wilson Botanical Garden, 5.6 km S. San Vito, 1300 m, Prov. Puntarenas, Costa Rica
- 1858 Lachesis muta coll. L.D. Gomez, December 1987  
India, no other data, rec'd from San Francisco S. P. C. A.
- 1859 Calotes versicolor  
No data, contraband, rec'd from U.S. Fish & Wildlife Service
- 1860 Derisoria punctata
- April 2 W. Slope of Mt. Diablo, 100 yds. from end of Valley Vista Rd.,  
Walnut Creek, Contra Costa Co., California
- 1861 Eumeces gilberti } coll. G. Beaman,  $\approx 1400$  hr.,
- 1862 Eumeces gilberti } under rocks
- April 15  $\approx 8$  mi N. I-5 on Kelbaker Rd., San Bernardino Co., California
- 1863 Masticophis flagellum active in yucca at  $\approx 1740$  hr  
Kelso Dunes, San Bernardino Co., California
- 1864 Dipsosaurus dorsalis }
- 1865 Uma scoparia } sent to Moscow Zoo
- 1866 Gambelia wislizenii }
- Kelbaker Rd. between I-5 and Natl. Trail Hwy, San Bernardino Co., California
- 1867 Phrynosoma platyrhinos AOR  
Pisgah Lava Flow, San Bernardino Co., California
- 1868 Coleonyx variegatus AOR } sent to Moscow Zoo
- 1869 Coleonyx variegatus AOR }
- 1870 Crotalus cerastes AOR
- 1871 Chionactis occipitalis AOR
- April 18  $\frac{3}{4}$  mi. E. Skyline Blvd., Oakland, Alameda Co., California
- 1872 Diadophis punctatus coll. T. Sinclair 1989-90, 408 + 87 mm, 20g.  
disposed Ensatina eschscholtzii



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- April 23 "Rara Avis" near Las Horquetas, Prov. Heredia, Costa Rica  
1873 Tylomys watsoni coll. G.C. Gorman, removed from 1.85 m Lachesis muta,  
swallowed head-first. Snake discarded.
- Zapaton de Puriscal, Prov. San Jose, Costa Rica  
November 18, 1988 regurgitated bat, 17.4g  
1874 Bothrops schlegeli rec'd from A. Solórzano, D.C.P. TL 611 mm, 63.2g
- Ciudad Neily, Prov. Puntarenas, Costa Rica  
1875 Leptodeira septentrionalis regurgitated Bufo 31.5g  
rec'd at D.C.P. March 25, 1988 TL 652 mm, 55.5g
- May 3 Buckhorn Canyon, Alameda Co., California  
1876 Eumeces (♂? much orange) regurgitated by Masticophis lateralis "A6 ♂" coll. G. Beeman  
780 + 305 mm
- May 10 4.0 mi E. Alameda Co. Line on Coral Hollow Rd., San Joaquin Co., California  
1877 Masticophis flagellum DOR  $\approx$  1830 hr
- May 15 0.5 mi. S. I-70, 1.7 mi. W. McDowell Creek Rd., Geary Co., Kansas  
1878 Diadophis punctatus coll. T. Sinclair 89-38, April 26, 1989  
0.7 mi. S. I-70, 1.8 mi. W. McDowell Creek Rd., Geary Co., Kansas  
1879 Tantilla nigriceps coll. T. Sinclair 89-39, April 26, 1989
- June 6  $\approx$  1 mi E. Portal on Portal Rd., Cochise Co., Arizona  
1880 Micruioides euryxanthus AOR/DOR 2030 hr, coll. B. Torberlin
- June 7 2.8 mi. W. Portal on Paradise Rd., Cochise Co., Arizona  
1881 Salvadora grahamae active in shade on slope, 1726 hr.  
505 + 182 mm, 37g
- June 8 Hardy's House, Portal, Cochise Co., Arizona  
1882 rodent, swallowed head-first by Pituophis melanoleucus (released)  
1060 + 165 mm, 385g
- 10 mi. E. Hwy 285 on FM 2400, Tensell Co., Texas  
1883 Cnemidophorus coll. B. Torberlin, T. Snell  
DOR 1600 hr June 2, 1989
- June 9 Chiricahua Jct. Rucker Canyon Rd. & Hwy 80, Cochise Co., Arizona  
1884 Holbrookia maculata sunning at  $\approx$  1100 hr, 65 + 64 mm, 8.6g
- June 10 2.8 mi. W. Portal on Paradise Rd., Cochise Co., Arizona  
1885 Crotalus molossus coll. B. Torberlin, Fall 1988, radiotelemetered female



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June 10 Portal, Cochise Co., Arizona

1886 Sceloporus jarrovi coll. B. Torberlin, died <sup>winter 1988-1989</sup> hibernating on house  
4 mi. E. Portal, Cochise Co., Arizona

1887 Leptotyphlops coll. T. Snell, June 1, 1989, DOR  
Portal, Cochise Co., Arizona

1888 Leptotyphlops coll. S. Spofford, April 25, 1989  
Save Creek Canyon, Chiricahua Mtns., Cochise Co., Arizona

1889 Elaphe triaspis DOR, coll. B. Torberlin, May 15, 1989  
Geronimo Trail Rd., 4 mi. E. Douglas, Cochise Co., Arizona

1890 Phrynosoma cornutum DOR, coll. B. Torberlin, May 28, 1989  
Foothills Rd., 7 mi. S. San Simon, Cochise Co., Arizona

1891 Lampropeltis getulus DOR coll. T. Snell, May 3, 1989  
Vic. Antelope Pass, Hidalgo Co., New Mexico

1892 Notiosorex crawfordi

1893 Notiosorex crawfordi } dead in con traps, coll. B. Torberlin

1894 Notiosorex crawfordi } and T. Snell, Spring 1989

5 mi. W. Hwy 80 on Hwy 9, Hidalgo Co., New Mexico

1895 Phrynosoma cornutum DOR, coll. B. Torberlin & T. Snell, Spring 1989

7 mi. W. Animas on Hwy 9, Hidalgo Co., New Mexico

1896 Crotaphytus collaris DOR, coll. B. Torberlin, T. Snell, Spring 1989  
Vic. Antelope Pass, Hidalgo Co., New Mexico

1897 Crotaphytus collaris DOR, coll. B. Torberlin, T. Snell, Spring 1989  
4.5 mi E. Hwy 80 on Hwy 9, Hidalgo Co., New Mexico

1898 Masticophis bilineatus DOR, coll. B. Torberlin, T. Snell, April 29, 1989  
2 mi. W. Hwy 9 on Hwy 338, Hidalgo Co., New Mexico

1899 Taxtila nigriceps DOR, coll. B. Torberlin, T. Snell, May 25, 1989



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June 10 3.5 mi. W. Animas, Hidalgo Co., New Mexico

1900 Diadophis punctatus coll. B. Torberlin, T. Snell, June 20, 1988

10 mi. W. Hatchita on Hwy 9, Hidalgo Co., New Mexico

1901 Masticophis flagellum DOR, coll. B. Torberlin, T. Snell, <sup>Spring</sup> 1989  
Hwy 9, Hidalgo Co., New Mexico

1902 Lampropeltis getulus DOR coll. B. Torberlin, T. Snell, <sup>May 25, 1989</sup>  
20.5 mi SW State Line on Hwy 80, Cochise Co., Arizona

1903 Phrynosoma cornutum fresh DOR at 2000 hr

13.8 mi SW State Line on Hwy 80, Cochise Co., Arizona

1904 Pituophis melanoleucus fresh DOR 2040 hr

July 3 Paras, Prov. San José, Costa Rica

1905 Scolecophis atrocinctus rec'd from 4. Solórzano, coll. June 25, 1989  
15.0g, 390+60, pres. July 14, 1989

No exact date, Costa Rica

1906 Scolecophis atrocinctus rec'd from Inst. Clodomiro Picado

July 11 La Selva Biological Station, Heredia Prov., Costa Rica

1907 Ninia maculata on path ≈ 1200 hr AOR/DOR 122+31 mm, 1.2g

July 14 La Selva Biological Station, Heredia Prov., Costa Rica

1908 Leptophis ahaetulla <sup>July 12, 1989 800+530 mm, 74g</sup> asleep in tree at night, regurg. HWF 1909-1911

1909 Hyla elaeochroa ♀ 38 mm, 2.8g

1910 Hyla elaeochroa ♂ 36 mm, 1.8g

1911 Hyla elaeochroa ♂ 30 mm, 1.2g

} regurgitated by HWF 1908  
July 12, 1989

1912 Eleutherodactylus fitzingeri <sup>July 13, 1989 29 mm, 2.1g</sup> regurg. by Leptophis depressirostris  
black & orange

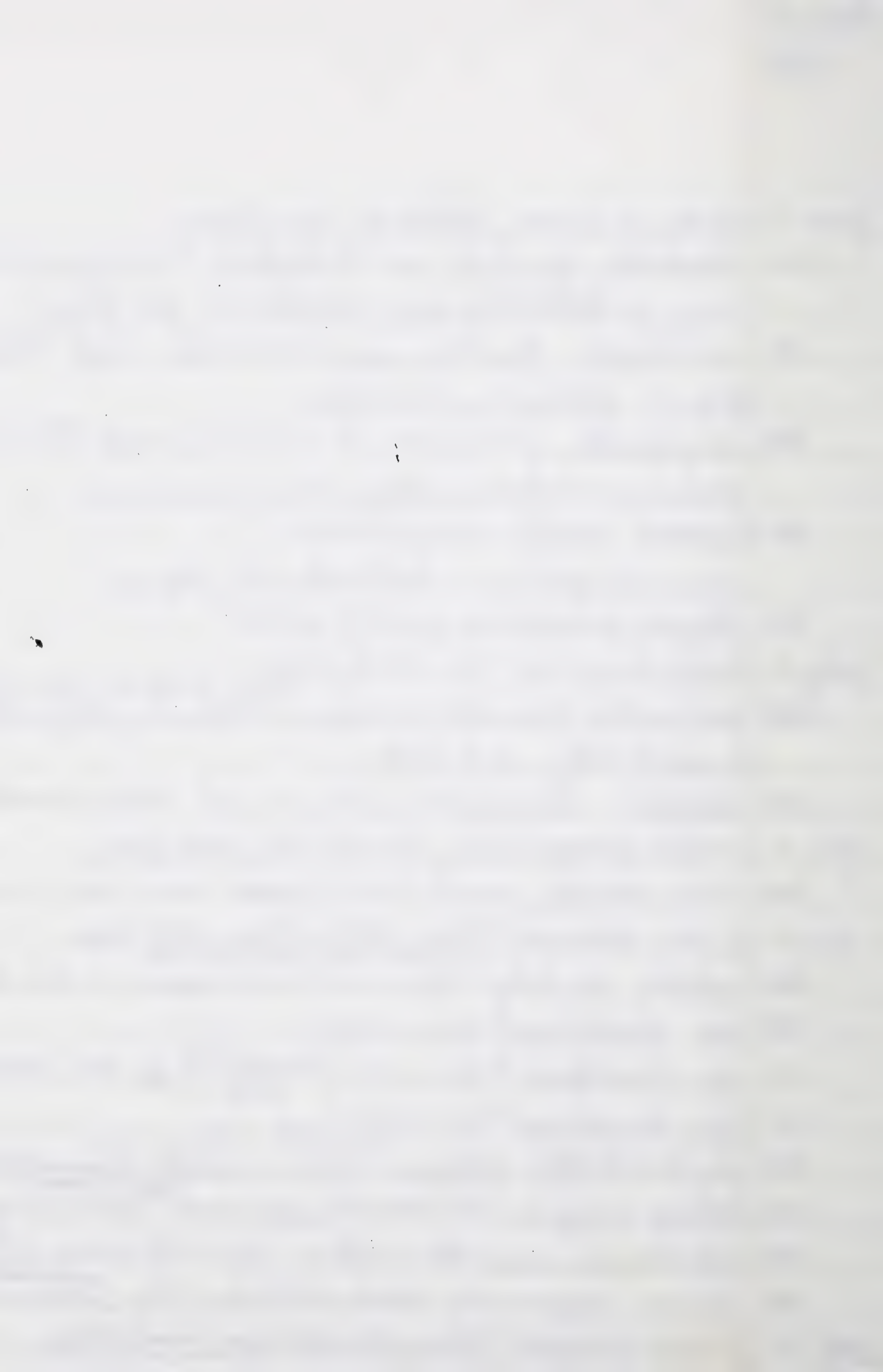
1913 Phoebastria eurysoma active ≈ 2030-2130 hr, July 12, 1989, 437+306, 55g

1914 Erythrolamprus mimus active in afternoon, July 13, 1989, 364+14+? mm, 20.5g

1915 Urotheca eurysoma active 2058 hr, tail 155 mm, 5.4g; <sup>snake black & white</sup> 425+82 mm, 43g

July 21 La Selva Biological Station, Heredia Prov., Costa Rica

1916 Micurus



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- July 21 La Guaria de Puerto Viejo de Sarapiquí, Heredia Prov., Costa Rica  
1916 Micromys nigrocinctus killed in house
- July 25 La Selva Biological Station, Puerto Prov. Heredia, Costa Rica  
1917 Epilotes pullatus, July 16, 1989, on trail at 0852 hr, ~~1700~~ <sup>780g</sup> 1700 + 590 mm  
1918 Rhachinaea decorata July 23, 1989, 6g, 245 + 154 mm  
on leaf 1.5 m above ground  
1919 Sibon longiferus coll. R. Foster, July 24, 1989, 3g, 202 + 90 mm  
on trail 2050' AS.  
1920 Lachesis muta, July 7, 1989, died July 25, 1989, 1235 + 120 mm 995g
- July 26 Puerto Viejo de Sarapiquí, Prov. Heredia, Costa Rica  
1921 Gymnopsis multiplicatus DOR, coll. J. H. Carothers
- July 27 La Selva Biological Station, Prov. Heredia, Costa Rica  
1922 Clelia clelia, coll. R. Foster, July 25, 1989, after dark <sup>1150 + 305 mm</sup> 490g  
737 + 53 mm  
1923 Micromys mispallatus coll. R. Foster, July 25, 1989, after dark, 79g  
1924 Oxyphaps petola coll. A. Mitchell, July 25, 1989,  $\approx$  2200 hr [lost-escaped]  
1.35 + ? Kg HWG 1929  
1925 Dasypsecta punctata, coll. July 26, 1989, regurgitated by Bothrops asper  
1926 Lachesis muta skeleton, July 26, 1988
- 1927 Gymnopsis multiplicatus <sup>July 20, 1989</sup> active on trail in clearing TL  $\approx$  425 mm  
1900 hr, 60g  
SV 82 mm, 45g  
1928 Bufo marinus killed by Leptodeira septentrionalis July 26, 1989,  $\approx$  0800 hr  
1929 Bothrops asper coll. July 26, 1989, died July 28, 1989; 2.7 Kg, 1625 + 241 mm
- August 1 Bajamar, Puntarenas Prov., Costa Rica  
1930 Sibon anthracops rec'd alive from A. Solórzano
- August 13 6.4 mi SW State Line Rd on Hwy 80, Cochise Co., Arizona  
1931 Thamnophis mearnsianus AOR/DOR 1947 hr 520 + 85 + ? mm, 68g  
10.6 mi SW State Line Rd on Hwy 80, Cochise Co., Arizona  
1932 Crotalus scutulatus AOR/DOR 1954 hr. 865 + 74 mm, 470g  
2.6 mi SW State Line Rd on Hwy 80, Cochise Co., Arizona  
1933 Lampropeltis getulus AOR 2055 hr  $\approx$  10<sup>3</sup> 1013 160 380g



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August 13 3.8 mi SW Portal on Cave Creek Rd., Cochise Co., Arizona

1934 Crotalus molossus AOR 2139 hr 845 + 44 mm 349g

Portal, Cochise Co., Arizona

1935 Eumeces obsoletus coll. B. Timberlin  $\approx 110 + 200$  mm, 42g

$\approx 1$  mi E. Portal, Cochise Co., Arizona

1936 Micruroides euryzonus AOR/DOR  $\approx 2100$  hr <sup>11/8</sup> 356 + 34 mm coll. B. Timberlin, T. Snell

August 14 17.4 mi SW State Line Rd on Hwy 80, Cochise Co., Arizona

1937 Crotalus scutulatus AOR 1954 hr 543 + 48 mm, 105g

August 15 3 mi. E. Hwy 80 on Hwy 9, Hidalgo Co., New Mexico

1938 Crotalus scutulatus AOR/DOR  $\approx 0700$  hr, coll. B. Timberlin, T. Snell

~~August 16~~ 22.3 mi SW of State Line Rd on Hwy 80, Cochise Co., Arizona

1939 Crotalus scutulatus AOR 2026 hr 482 + 28 mm 69g

11.7 mi SW of State Line Rd. on Hwy 80, Cochise Co., Arizona

1940 Crotalus atrox AOR 2056 hr 832 + 48 mm 197g

0.3 mi W of Portal on Cave Creek Rd., Cochise Co., Arizona

1941 Tantilla nigriceps AOR 2201 hr 196 + 50 mm, 3g

1.5 mi E of Portal, Cochise Co., Arizona

1942 Micruroides euryxanthus fresh DOR 2209 hr, 382 + 36 mm, <sup>12.5</sup>g

August 16 Rodeo, Hidalgo Co., New Mexico

1943 Masticophis flagellum coll. B. Timberlin, August 13, 1989 <sup>326 + 100 mm, 7g</sup>

3.6 mi SW Portal on Cave Creek Rd., Cochise Co., Arizona

1944 Masticophis bilineatus AOR 1130 hr, 957 + 425 mm, 182g

22.2 mi. SW State Line Rd. on Hwy 80, Cochise Co., Arizona

1945 Gnemidophorus uniparens 71 + 92 mm, 8.5g,

1946 Sceloporus undulatus 70 + 18 mm, 9.1g

1947 Sceloporus undulatus 64 + 89 mm, 9g

1948 Sceloporus undulatus 57 + 83 mm, 7g



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August 16 22.2 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona

1949 Crotaphytus collaris 89+160 mm, 27.1g

1950 Crotaphytus collaris 93+164 mm, 31.2g

1951 Phrynosoma douglasi 33+16 mm, 1.2g

14.2 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona

1952 Thamnophis marciannus AOR/DOR 2123 hr <sup>rearing. B. dobilis ~2g</sup> 492+130 mm, 58g

6.0 mi E. Portal, Cochise Co., Arizona

1953 Tantilla nigriceps 2149 hr., 290+62 mm, 9g

~1 mi. E. Portal, Cochise Co., Arizona

1954 Masticophis bilineatus AOR ~2100 hr! coll. B. Torberlin, T. Snell 758+340 mm, 80g

0.2 mi E. Portal, Cochise Co., Arizona

1955 Trimorphodon biscutatus AOR 2206 hr 265+45 mm, 2.7g

4.7 mi. E. Portal, Cochise Co., Arizona

1956 Crotalus scutulatus AOR 2153 hr 814+62 mm 358g

1.6 mi N Hwy 80 on State Line Rd., Cochise Co., Arizona

1957 Tamropeltis getulus AOR 2135 hr ♀ <sup>942</sup> ~955+130 mm, 268g

August 18 1.1 mi E. Portal, Cochise Co., Arizona

1958 Heloderma suspectum <sup>August 8, 1989</sup> donated by Game Warden K. M. Murphy shot by tourist who claimed it attacked his dog.

3 mi N. Apache on Hwy 80, Cochise Co., Arizona

1959 Pituophis melanoleucus DOR, coll. T. Sinclair, July 5, 1989

2 mi S. Portal Rd on State Line Rd., Cochise Co., Arizona

1960 Crotalus scutulatus DOR coll. B. Torberlin, T. Snell, July 17, 1989

18 mi N. State Line Rd. on Hwy 80, Hidalgo Co., New Mexico

1961 Crotalus scutulatus DOR coll. B. Torberlin, T. Snell, August 8, 1989

4 mi. S. San Simon on Foothills Rd. Cochise Co., Arizona

1962 Pituophis melanoleucus DOR coll. B. Torberlin, T. Snell, May 12, 1989



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- August 19 Jct. Rucker Canyon Rd. & Hwy 80 18.7 mi SW State Line Rd., Cochise Co., Arizona  
1978 *Sonora senriannulata* under rock, 264+51 mm 8.1g  
1979 *Lampropeltis getulus* under rock in mouse nest  
1980 *Crotalus scutulatus* under rock
- October 19 2.2 mi W. Hwy 80 on Rucker Canyon Rd., Cochise Co., Arizona  
1981 *Crotalus atrox* basking among rocks 1230 hr., 190g  
23.0 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona  
1982 *Heterodon nasicus* DOR  $\approx$  1330 hr.  
16.7 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona  
1983 *Pituophis melanoleucus* AOR/DOR 1348 hr.  
Jct. Lane Creek Rd. & South Fork, Chiricahua Mtns., Cochise Co., Arizona  
1984 *Crotalus molossus* coll. B. Tomberlin <sup>fed but not shed in captivity</sup> July 7, 1989; pres. Oct. 19, 1989
- October 20 Chiricahua, Jct. Hwy 80 & Rucker Canyon Rd., Cochise Co., Arizona  
1985 *Pituophis melanoleucus* on surface of *Dipodomys spectabilis* mound, 1017 hr.  
1986 *Crotaphytus collaris* under rock at  $\approx$  1030 hr., ligand tail in throat.
- October 21 1.8 mi N. Hwy 80 on State Line Rd., Cochise Co., Arizona  
1987 *Heterodon nasicus* AOR 1510 hr.  
17.7 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona  
1988 *Diadophis punctatus* DOR (fresh) 1536 hr.  
21.2 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona  
<sup>Mulberry Draw</sup>  
1989 *Elgaria kingi* active 1650 hr
- October 22 Cinder Mine 22.0 mi SW State Line Rd. on Hwy 80, Cochise Co., Arizona  
1990 *Holbrookia maculata*  
Portal, Cochise Co., Arizona  
1991 *Diadophis punctatus* coll. B. Tomberlin, July 7, 1989



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- August 18 7 mi W. Animas on Hwy 9, Hidalgo Co., New Mexico  
1963 Salvadora DOR coll. B. Torberlin, T. Snell, July 7, 1989  
Rodeo, Hidalgo Co., New Mexico  
1964 Heterodon nasicus DOR coll. B. Torberlin, T. Snell, July 13, 1989  
6 mi. W. Animas on Hwy 9, Hidalgo Co., New Mexico  
1965 Crotalus viridis DOR coll. B. Torberlin, T. Snell, July 28, 1989  
1 mi N. Portal on Foothills Rd., Cochise Co., Arizona  
1966 Thamnophis cystopsius DOR coll. B. Torberlin, T. Snell, June 29, 1989  
Portal, Cochise Co., Arizona  
1967 Eumeces obsoletus <sup>coll. B. Torberlin, T. Snell</sup> drowned in car trap, July 29, 1989  
9 mi N. Portal on Foothills Rd., Cochise Co., Arizona  
1968 Pituophis melanoleucus DOR, coll. B. Torberlin, July 12, 1989  
1 mi W. State Line Rd. on Portal Rd., Cochise Co., Arizona  
1969 Crotalus atrox DOR coll. B. Torberlin, T. Snell, August 1, 1989  
Portal, Cochise Co., Arizona  
1970 Lampropeltis getulus DOR coll. B. Torberlin, T. Snell, July 5, 1989  
Portal Rd., Cochise Co., Arizona  
1971 Rhinocheilus beartei DOR, coll. B. Torberlin, T. Snell, July 4, 1989  
Near jct. rds. to Buena Vista Peak and Rustler Park, 8600', Cochise Co., Arizona  
Chiricahua Mtns.  
1972 Crotalus molossus coll. T. Snell 821 + 50 mm, 402g  
Granite Gap, 22 mi N. State Line Rd. on Hwy 80, Hidalgo Co., New Mexico  
1973 Heloderma suspectum DOR coll. B. Torberlin, T. Snell  
August 19 Jct. Rucker Canyon Rd & Hwy 80, 18.7 mi SW State Line Rd., Cochise Co., Arizona  
1974 Sceloporus undulatus under rock, 60 + 13 + ? mm, 6.5g  
1975 Sceloporus undulatus under rock, 74 + 102 mm, 11g  
1976 Cnemidophorus uniparens under rock, 64 + 120 mm, 6g  
1977 Phrynosoma douglasi active ~1030hr, 41 + 19 mm, 3.9g



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November 9 No data, perhaps Mexico, based on color pattern

1992 Crotalus willardi - rec'd from USFWS, September 18, 1989, <sup>died</sup> Nov. 1989

Sierra San Luis,

1993 Crotalus willardi - rec'd from USFWS



# H. Greene

1985-1989

## Journal

1985

Calif: Contra Costa, San Bernadino Cos.

Arizona: Pima, Cochise Cos.



Greene, H.

1985

# Journal

11 January

Pisgah Lava Flow, San Bernardino Co., California

Claudia Juke and I arrived here  $\approx 1600$  yesterday after two days of working in the Los Angeles Co. Natural History Museum. Spent today walking around, taking temperatures on the lava and adjacent areas (Claudia's data), and working on an old trailer she found last fall. It is  $\approx 2$  km W of the crater, reachable by walking on a track that runs off (to the W) of the Mining Company Road to the Crater. Sunny, partly cloudy, windy and chilly at times (Claudia got a max. lava surface temperature of 26.2, shaded; rocks were warm to the touch throughout midday). Saw no reptiles, but lots of scats of Sauromalus and Neotoma.

22 - 23 February

Big Horn Regional Park, Contra Costa Co., California

Took my natural history class to the Alhambra Valley Rd entrance both mornings. Beautiful days, the hottest on record since 1849. Still Taricha and Hyla in the ponds but most activity is evidently over - saw many egg masses of both, but only a few newts in amplexus. Saw 7-9 adult Clemmys marmorata basking at the uppermost lagoon in late morning both days. also golden eagles, Sceloporus occidentalis (out basking), and a last fall's hatchling Lampropeltis getulus - under a rock and bearing a fresh wound (bird peck?) just anterior to the cloaca.

1-2 March

Returned w/ my natural history class to the Bear Creek Rd entrance. Weather cool, windy, overcast to



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1985

1-2 March  
(continued)

partly cloudy. Concentrated both days on the open area on top a hill, the "old archery range". Got (on successive days) 113/166 Batrachoseps, 9/3 Ensatina, several Taricha, 2/0 Sceloporus, 1/2 Eumeces, 1/3 Gerrhonotus multicarinatus, and 0/2 Contia - all under cover.

9 March

S. Slopes of Box Springs Mtns., San Riverside Co., California  
Arrived here  $\approx$  1130 hr w/ Ben Dial (Chapman College) and Robert Fisher (student at UC Irvine), a steep slope of large granite boulders among fairly open coastal shrub. Overcast w/ occasional sun. Saw 1-2 Uta, a few Sceloporus occidentalis, and many S. orcutti active on the ground and boulders. Found one scat of Lynx rufus.



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1985

18 April

Pisgah Lava Flow, San Bernardino Co., California

Claudia Juke, Jeff Kauffman, and I arrived here (trailer)  $\approx 0100$  hr, having left Berkeley at 1430 yesterday. Some rain on the way down and during the night here, chilly, at times very windy. Found a skinny adult Crotalus cerastes motionless in the middle of National Trails Hwy  $\approx 0008$  hr,  $\approx 5$  mi E. of Newberry Springs. Didn't expect a snake so late and cold! Overcast, cool, and windy all morning (we slept late, then parked in another load from the car,  $> \frac{1}{2}$  mile away). By 1230 clouds breaking up from the west and getting warmer. I walked from then until 1345, during which there was some bright sun and occasional drizzle. At 1304 hr I found an adult Crotalus mitchellii coiled at the edge of lava and hardpan slope, S. of the trailer on the S. edge of the finger that goes W and at its base. Snake turned into a hole in the lava and rattled and coiled when I hooked it out. Saw much old Sauromalus scats and some of Neotoma, but no active lizards. Jeff and Claudia walked out to the car - they saw 2 Uta and collected scats of Canis, Lynx, and Vulpes. We clipped the snake's last ventral, weighed (434 g), measured (815+60 mm, ♂), and palped out a Neotoma that had been swallowed head-first. After late lunch we walked from  $\approx 1530$  - 1800. I saw only Uta.



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18 April  
(continued)

but Claudia found Uta, a Sauromalus, and a little Gopherus (<sup>[see below too]</sup> carapace 90 mm, 170g [after copious defecation and urination], 3 growth annuli, suggesting born season of 1981). The tortoise was head-in to a cavity in lava, and several meters out onto the flow from hard pan. After dinner we roadhunted from 1910 - 2000 and  $\approx 2100 - 2130$  h, including  $\approx 5$  trips over the usual 2 mi stretch and one trip to Indlow for desert. At 2110 h, 0.8 mi E of the RR tracks, got an AOK juvenile Arizona elegans. Saw numerous Dipodomys and a few Lepus on the road. Forgot to mention earlier that when we removed the Gopherus it elevated the posterior carapace by extending hind legs, hissed, and snapped when I poked its front legs with my finger.

19 April

Sunny and windy at dawn. Saw a Uta active at 0708 h. Worked around trailer 'til  $\approx 1000$  h, then drove out to Natl. Trails Hwy, W. a few miles, and S for  $\approx 6$  miles on a good dirt road used by Ken Norris for his transect here. Warm and sunny. We saw  $\geq 6$  Sauromalus, including one huge  $\sigma^7$ ; 1 Urosaurus; 1 Gambelia (basking on a short charred log!); numerous small Callisaurus; lots of Uta, mostly  $\text{F}\&\text{F}$  gravid; and a few Cnemidophorus. We went  $\approx 75-100'$  down a mine shaft, near a tin shed in the lava ad visible from the road (Norris' "Pisgah Hilton"),



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19 April  
(continued)

but saw no animals. Saw a Buteo jamaicensis over the road in lava. Went to Barstow for supplies, and got back to the trails  $\approx 1715$  hr. Intermittent winds all day, but nice. Road hunted  $\approx 1900-2115$ , six trips back and forth over the standard 2.1 mile stretch. Found a DOR adult Crotalus mitchelli, several hours old; a small fresh DOR C. cerastes; ~~and~~ a fresh DOR Scizora with a rodent in its stomach; and 2 ♂ Coleonyx. Very strong winds in the evening (shook trailer hard!).

20 April

High overcast and cool at dawn. Brian McGarity, Ben Dial, and Chris Austin joined us last night, and we sat around talking after breakfast til 10. Walking out, we found a small ♂ Phrynosoma platyrhinos (1030 hr) active in the road and a small adult ♀ Callisaurus stationary under a creosote bush. Went to Kelso Dunes, walked for one hour, and saw no lizards. Cold and windy, overcast, all day and some rain as we drove back to Pisgah  $\approx 1530$  hr. Road hunted  $\approx 30$  miles on Natl. Trails Hwy from  $\approx 1915-2030$  and saw no snakes, a few Dipodomys, and one large Canis latrans. Earlier in the day at the trails we saw a Falco sparverius and a possible Prairie Falcon. By 2200 hr sky clear, very cold and windy, and we are hoping for better (= better) weather tomorrow!



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21 April

Sunny and windy. Released the Crotalus mitchelli (see 18 April) at capture site, took photographs,  $\approx 1000$  hr. It took refuge in the same crack by which originally captured. Went to Jeff's Uma study site, on N. edge of the flow — saw only Cnemidophorus, Uta, an adult  $\sigma^7$  Callisaurus, and Chris saw one Uma. Not warm yet. Went to the Norris transect/power line road and drove to crest ridge  $\approx \frac{10}{8}$  mile S. of National Trails Hwy. Saw Uta and Sauromalus near the Pisgah Hilton. Beyond lava, in creosote, found a smallish Gopherus at  $\approx 1300$  hr beside the road and active, w/  $\approx 10$  growth annuli. It ( $\sigma^7$ ) has several grooves and chips anteriorly and posteriorly on one side of the carapace, and some nicks on the plastron — coyote, lava, or what? Stopped in an area of sparse yucca and Claudia and I each got a very large Xantusia vigilis. Jeff got a  $\text{f}$  Sauromalus at the highest place we stopped. Went back to his Uma site on N. edge of the flow, but saw none. While we hunted lizards, Claudia checked out Brian McCarty's report and found large quantities of raptor pellets and droppings under the railroad bridge (ie., over tracks) N of the crates. Returned to trailer  $\approx 1630$  hr and I checked the crack for the C. mitchelli — still there, several inches in, quiescent w/ head facing out. We read hunted



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21 April  
(continued)

from  $\approx 1835$  hr til 2000 then had desert in Juddlow and drove back. Only snake was a very cold adult Arizona elegans, AOR at 1930 hr, 0.7 m. S. of Nattle Trail Hwy on Pisgah Crater Rd. Forgot to say we continued to collect scats today, including Lynx and both species of Canids. Claudia took several from a burrow mouth where we stopped for Xantusia - a little puzzling since they were the right size for Vulpes, but the burrow struck me as more likely coyote ( $\approx 8-10" \times 12-14"$ ). This whole trip I've been impressed by the number of bobcat, fox, and coyote scats we've seen.

22 April

up at 0600 to pack. Checked the Crotalus mitchelli - still in the crack, but in a side crack and ca. 14" into the lava. Could see only the edge of a coil. Left  $\approx 0715$ .



17 May	Berkeley - PS
18 May	Desert Symposium, Garnett Dunes, ORV, C. cerastes,
19 May	Pisgah - m.f., 2 C.m., 2 C.c., Phyllorhynchus
20 May	FW
Fri 24 May	Pisgah
Sat 25 May	m.f. 9:06
Sun 26	to Sheep coral - m.f. Xanthusia Gambeliana
Mon 27	Betsy left Eric arrived
Tue 28	no road hunt, laundry, <del>Betsy left</del>
Wed 29	fell / m.f. Arnold arrived
Thurs 30	Sheep coral RH to Anbar, walked around
Fri 31	watched C. ♀ dig pit Arnold left

1

2



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18 May Palm Springs, San Bernardino Co., California  
arrived here last night to attend Desert Reptile Symposium, in honor of Stebbins, at Palm Springs Desert Museum. Near sundown we walked around dunes on Washington Avenue, a mile or so N. of I 10. "We" includes Ben Dial, Jon Losos, John Carothers, Jeff Kaufmann, and Chris Austin. Claudia saw sand spraying out of a burrow, and we looked into see a small Crotalus cerastes which illuded our efforts and escaped down it.

19 May Pisgah Lava Flow, San Bernardino Co., California  
Claudia Juhn and I arrived here in early afternoon and unloaded some supplies at our trailer,  $\approx 1$  mi W. of the crater. Driving out, at 1513 hr, we caught a  $\approx 1$  m Masticophis flagellum draped over lava, beside a Neotoma nest [specimen later accidentally released]. Went to the "Pisgah Hilton", an old mine shed  $\approx 5$  mi. ~~W~~ S. Natl Trails Hwy on a dirt powerline road and  $\approx 2$  mi W of the crater. At 1945 hr got a 468+29 mm Crotalus mitchelli, 70g, which was heard rattling by a student as he walked by. Palped (empty) and released it, after clipping second ventral. We were here to link up w/  $\approx 25$  former Zoology 107 students, and when they arrived I learned that



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- 19 May (continued) my father died suddenly of a heart attack last night. Claudia and I made two trips to Judlow to get the details and make travel arrangements for me to Fort Worth. Got a Crotalus cerastes and a Phyllorhynchus on the way.
- 24 May Returned to Pisgah today, having traveled to and from Fort Worth via Ontario airport. Met Claudia at the Twin Mountain mine office at the Crater, where we talked w/ two men about their snakebite problem. One is recovering from a cerastes bite, and they've had a recent rash of sightings. Claudia had returned here yesterday from Darwin Falls w/ Wayne Sousa and Betsy Mitchell (both UCB), who are going to watch Cnemidophorus.



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28 July

Left Berkeley ~0845AM, Honda's odometer 15918. Stopped only for gas until I hit Newberry Springs. Right after I left the Interstate there was an old station wagon smoking beside the road - woman standing beside it nervously, man ~ my age and two young boys walking toward Newberry Springs. As I pulled over they ran up, told me their oil light came on. Car smoking pretty bad, so I said to stay away from it and drove the few blocks to the first bar. Caused a stir when I ran in shirtless and got their fire extinguishes. When I returned the engine was on fire, billowing black smoke, and the family was unloading the car. Yelled for them to stay away and tried to unstick the fire extinguisher. Little kid was yelling about getting his skateboard out! Finally got the extinguisher going, started spraying under the car - got about 3 seconds of spray when it quit. At the same time there was a loud pow under the hood - everyone scattered and I jumped in a ditch beside the car. Told them once more to stay away, drove to bar, found out they'd called the fire truck, and I decided to go onto to Ludlow where I was to meet Ben Dial (Chapman College) for dinner. As I drove east out of Newberry Springs I met a fire truck going west and from several miles away could see dark smoking reaching hundreds of feet into the sky.



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28 July  
(continued)

Wondered if they were OK. We went to the Sidewinder Cafe for dinner, and before hand checked the spot - car gone, lots of black crud on highway and broken glass. Road hunted from ~~2045~~ 2045-0045 hr, mostly around Pisgah but we made one 10 mile trek down the road to Anchoy. Saw a few rabbits and a few Dipodomys. Two Xantusia vigilis AOR  $\approx$  2100 hr. a few miles E of Newberg Springs, where tanarish lines the road. Only snake was a Phyllorhynchus decurtatus, 1.1 mi W of RR at 2220 hr -  $\sigma$ ,  $\approx$  30 cm TL, no food, released. Full moon, clear sky, fairly warm.

29 July

Left Ludlow  $\approx$  0900 hr, arrived at Dave Hardy's house in Tucson at ~~1900~~ 1900 hr, having only stopped for gas and to stretch a couple of times. Nicest part of the drive was the first  $\approx$  40 miles S. of Needles on U.S. 95 - some of the prettiest desert mountain scenery I've seen in California. Topped like a good road for Trimorphodon and Diadophis <sup>Lichanura</sup>.

30 July

Spent all day at the University of Arizona, examining preserved Trimorphodon and Diadophis. Had a fine talk w/ Chuck Lowe, who regaled me w/ tales of early Stebbins etc. Met George Middendorf (Howard U.), his new wife Sally, and Howard Lawler for road hunting from  $\approx$  2100-0100, w/ an hour or so off at Howard's place in the Arava Valley. Saw an adult Crotalus atrox between Gates Pass and the Desert Museum. Most of the time we were on the road to Silverbell and



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30 July  
(continued)

vicinity. Saw lots of Bufo alvarius and 1 Scaphiopus couchii. Saw 2 Crotalus cerastes (AOR 2245 hr, AOR/DOE 2359 hr), 1 C. atrox (AOR 2314 hr), and 1 Vulpes macrotis (AOR 2332 hr). Also  $\geq 3$  Canis latrans, of which I saw a pair lope off among saguaros at dusk before I left the Hardy's house in Tucson (Sabino Canyon).

31 July

Up late. Went shopping. Storms all around Tucson by late afternoon, and some rain as I left at  $\approx 1630$  hr for Howard Lawler's place in the Arava Valley. After dinner, road hunted from  $\approx 2000 - 2400$  hr. Saw 1 neonate Crotalus scutulatus, 1 Rhinocheilus lecontei, 3 Pituophis melanoleucus, 1 Lampropeltis getulus (crawling across road in driving rain), 1 Phrynosoma solare (active on road, well after dark), several coyotes (two of which I stopped w/ mouth noises), numerous Scaphiopus couchii, and dozens of Bufo alvarius. We were driving mostly in the valley (on Sandario Rd.) or foothills (back and forth over Gates Pass Rd.). The Bufo alvarius are absurd sapos: alive they look like fresh cow pies - round, moist, and green. Dead they are large enough to be a little macaque, w/ bloody legs poking the sky. Sometimes as the car approaches they rise high and run w/ a strange fast crab walk! Got home  $\approx 0130$  hr.



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1 August

Got up late. after lunch went to see Don Miles, at a place east of town on Pince Rd. Coming back, at the base of the Hardy's hill on Old Sabino Canyon Rd., I saw a woodrunner w/ an adult Cnemidophorus sp. in its bill. Overcast and rather cool all day. after dinner w/ the Hardy's picked up Howard Lawler and road hunted from  $\approx 2130 - 2330$  hr, from Anthony Rd to Ajo Rd on Sandario Rd, and over Gates Pass. Saw only 1 juvenile Crotalus scutulatus (AOK), 1 small adult C. atrox (AOK/DOK), and 1 DOK juvenile Rhinocheilus lecontei, plus a fair number of Scaphiopus and Bufo alvarius - all on Sandario Rd. almost full moon, so very bright when not obscured by the clouds.

2 August

out to Desert Museum for lunch and a visit w/ Howard Lawler (my road hunting companion all week and curator of small animals). Rained very heavily. after dinner, Dave Hardy and I drove to Vail,  $\approx 25$  miles SE of Tucson. Saw only Bufo alvarius, Scaphiopus, a Coleonyx, and one subadult Crotalus scutulatus. Not raining, large moon intermittently visible.

3 August

after lunch drove to Cave Creek Canyon in the Chiricahua Mountains, Cochise Co. to see Barney Torberlin. Stopped for gas in Bowie, a few miles W. of the New Mexico line on I-10. Lady in store said she'd had a bad day with "drunk injuns - wish they'd go back to the reservation." Had hamburgers w/



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3 August (continued) Barry and Max Beckwith, a 16 yr-old from Marin Co. who's down here helping him. They have a live and DOR Diadophis and a Trimorphodon for me. We road hunted from  $\approx 2000-2300$  hr, out of Portal, down Stateline Rd., and down S. on U.S. 80 to  $\approx 20$  mi out of Douglas. Saw Scaphiopus, Ryo alvarius, 2 juv and 1 adult Crotalus atrox, 1 juv. C. sentulatus, and 4 Thamnophis marcianus. Heavy thunderstorms all around and much water on the roads, but no rain on us. Stopped at a ditch near Portal, in mesquite, to see Scaphiopus couchi and S. multiplicatus in a mixed chorus.

4 August  $\approx 0900$  went to a hill  $\approx 5$  mi NE of Portal, on the dirt road to San Simon. Creosote and mesquite on the flats, ocotillo and cacti among boulders on the slopes, some rocky cliffs high on the hills. Max showed me a dead Masticophis lateralis they had seen several days earlier, and I was impressed by the resemblance of its blue-gray skin to a dead branch. I found a Coleonyx under a pile of dead agave leaves, the only heap under  $\approx 25$  of these I turned. At 0945 hr a cow caused a Crotalus atrox to rattle from under an ocotillo (cow started!). It was  $\geq 1$  m long, reluctant to leave the small spot of shade it occupied, and hissed and rattled continuously.



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4 August  
(continued)

Our goal here was Heloderma, which have been seen in the vicinity, but we found no other herps before leaving  $\approx 1000$  hr. After a trip to Rodeo, New Mexico for food, Max and I went to a good site for Crotalus lepidus in Cave Creek Canyon. We hiked  $\approx 1$  hr from the road to Ash Spring, then  $\approx 1$  hr above it to an area of talus slides in forest, a few hundred feet below large cliffs on an E or SE facing slope. Trail is often in the open and rocky, winding through open forest. Lots of agaves. Just as we started walking, in thick woods, we found a juvenile Phrynosoma douglasii in the road, a close match to the leaves and rocks it sat amongst (this was at 1247 hr). At 1313 hr I heard rattling nearby and found a ♀ Crotalus lepidus (37g) going under rubble beside the trail. As we pulled her out Max saw  $\geq 4$  newborn young (open umbilical scars, opaque skin), one of which we were able to catch and photograph. At Ash Spring we drank cold, good tasting water and released a beautiful yellow Crotalus molossus (640g) Barney had sent w/us. At the uppermost rock slides Max caught 3 more C. lepidus, one of which I kept. With all these snakes I was impressed with their snappiness, constant



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4 August  
(continued)

rattling, and efforts to seek shelter rapidly. Wondered if rattling for them serves as a "pursuit invitation signal?" At 1513 hr, just as we were coming back from above to Ash Springs, through heavy woods, I heard sounds in the leaves behind me. Turned to see a  $\approx 80$  cm Pituophis melanoleucus crawl rapidly across the trail and try to ascend an oak. After I'd seized and examined the snake, it readily ascended the tree to  $\approx 3$  m. all along the trail, up and down, we saw lizards - several each of Sceloporus jarrovi and S. virgatus and 1 S. clarki. After dinner went road hunting w/ George Muddendorff, 1 trip up and down Cave Creek Canyon and two out to  $\approx 5$  mi S. of the Portal store on the Gladetop to Rodeo. Saw 2 juvenile Crotalus scutulatus and 1 juvenile C. atrox, and surprisingly, an adult C. lepidus AOR at 0.6 mi S. of the Portal Store in mesquite. Snake was  $\approx 35$  cm total length w/ an empty stomach, crawling from the east side of the road (mesquite, Cave Creek) toward the west, which is more open and has a hill with cliffs  $\approx \frac{1}{4}$  mile away. Tomberlin proposes the snake was washed down out of Cave Creek Canyon in a large flash flood a few days ago.



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5 August

Left  $\approx$  0830 w/ Barney and Max for a talus slide  $\approx$  8600' near Rustler's Point. It is a S or SE facing, steep slope, w/ oaks, pines, manzanita, and large open fields of talus. As we came over the crest to descend, heard a big commotion and saw a  $\approx$  400 pound red bull hanging by its neck from an oak tree crotch - it had apparently lost its footing and slid into that predicament. Barney dashed off to the car to get a saw at a Forest Service station up the road, but the bull evidently died about that time as it never moved again and I could detect no movements. Max and I began to search the talus, and w/in minutes (0940hr) we heard then caught a large adult Crotalus pricei. It had an empty stomach and seemed light so while taking photos we offered it a Sceloporus virgatus which it ate! also saw numerous S. jarrovi. It was bright and sunny when we arrived, but dark clouds blew in from the NW and a light rain fell sporadically as we left. Next stopped downhill (still well above the Southwestern Research Station) and worked up and down road along East Turkey Creek for an hour or so. Saw lots of Sceloporus, but the only snake was a nice young adult C. molossus Barney found sunning in front of a rock, a



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5 August, continued) few meters above the creek in open woods. Hooked it out gently, which elicited only mild rattling, and into a sack - might be digesting a meal. Driving back, just down canyon from the SWRS, a large Masticophis bilineatus crossed the road and disappeared near the creek among trees - very fast. met Vince Roth, Director of the Southwestern Research Station, who gave me a beautiful Elgaria kingi he caught today near the station. After dark made three circuits up Cave Creek Canyon to the S.W. R. S. and three trips 3.0 miles S. of Portal, from X 20-2230 hrs. Saw 2 Crotalus scutulatus juveniles on the southern runs (2052 hr, 2154 hr, not collected). Got a large, beautiful Elaphe ferox just crawling onto the road in Cave Creek Canyon at 2018, 0.5 mi toward S.W. R.S. past the turn to South Fork. It lay motionless until picked up, then formed an acute S-curve and struck wildly until bagged. at 2110 hr found a large Hypsiglena torquata just hit near S.W. R.S. at 2045 hr there was a Micruroides euryzanthus AOR in mesquite 1.5 mi S. of Portal, easily recognizable from w/in the car. When I restrained the snake it began wild contortions, tail display, snapping and biting, and sharp cloacal popping that was easily audible. When I examined the snake two hours later it had regurgitated a



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5 August  
(continued)

freshly ingested Leptotyphlops (4g). Barney and Max had gone to New Mexico, where they collected a Gyrodactylus canum and a Crotalus that appears scale-wise and in coloration to be a hybrid Crotalus molossus x scutulatus. They also gave me a DOR adult C. scutulatus from New Mexico and a just hit C. molossus from Cave Creek Canyon. What a day! [Need to add some mammal notes. Yesterday I saw an Apache Fox Squirrel on the road to Ash Spring and Ursus americanus scat on the trail above there. Have seen numerous deer, rabbits, and ground squirrels. Last dusk, at 1759 hr, I encountered 4 javelina just down the paved road to Portal from Dave Hardy's house.] I must stress how impossible it was to tell head from tail on the Micruroides during its display.

6 August Drove up to the collection site of Elaphe tiaspis for photographs — heavily wooded on the SW, w/ canyon walls nearby, open field w/oaks, then stream and canyon walls on the NE. Back to Barney's for breakfast and photographs of the snakes. The Micruroides repeated its performance, and I noticed that when the body extends and freezes, the head is tucked back acutely, enhancing resemblance to the tail. As I drove S. of Portal  $\approx$  0930 hr, found a  $\approx$  5' Pituophis melanoleucus stretched out on the pavement.



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- 7 August Spent last night with Chuck and Mickey Bogert in Santa Fe, and made it to "North Pine," a cabin owned by Rob Colwells' folks in Drake, Colorado.
- 8 August To Boulder for Rob's wedding.
- 9 August Drove to Salt Lake City via Laramie and Rock Springs, Wyoming.
- 10 August Spent today w/ Len Rodinsky, Leah Rodinsky (daughter), and Sharon Emerson at their house near Park City. Checked my snakes, and discovered a large scat w/ the Crotalus molossus - confirming my suspicion that it was digesting a meal when found.
- 11 August Salt Lake City to Flagstaff via I-? and Utah 89, the latter through spectacular vermilion cliffs of the canyon country. Noted that the habitat <sup>north</sup> of the Sunset Crater/San Francisco Peaks area, where Lampropeltis ~~has~~ triangulum has been taken, is juniper-sage-grassland. Spent the night in the El Pueblo Motel, a cheap dump.
- 12 August Drove to Tucson, via Phoenix where I picked up a Helodeuma suspectum from the Arizona Game and Fish Dept. arrived Tucson  $\approx$  1300 hr. As I left the Hardy's house at 1808 hr, a 12 cm carapace length Gopherus agassizii was crossing their drive-way. Road hunted from  $\approx$  1930 - 2330 hr, picking up and



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12 August  
(continued)

dropping off Howard Hawker at his home in the Avra Valley in the course of things. No rain, dark moon, warm, as before, our route was up and down (N-S) on Sandario Rd, an area of lowland desert that is particularly moist at its south end (it ends at the Ajo Rd.), alternated with trips over the Tucson mountains via Mile Wide, Kenney, and Gates Pass Roads, turning west again at Camino de Oeste on the western outskirts of Tucson. Found 17 snakes and saw 2 carnivores: a fresh DOR Trimorphodon biscutatus low on the E. slopes of the Tucson Mountains (2111 hr); 2 AOR juvenile Rhinorhynchus lecontei, claus-phase (2032 hr, not collected, in Saguaro National Monument, 2139 hr); 2 DOR Pituophis melanoleucus (1929 hr, 2354 hr); 1 AOR yearling Crotalus ligis (2136 hr); and 1 AOR juvenile C. atrox (2132 hr) on the western slopes of the Tucson mountains. All of the above snakes came from rocky, upland desert habitats w/ lots of Saguaros. On Sandario Rd., lowland desert, we saw (didn't collect) 4 juvenile C. atrox (2146, 2149, 2151,  $\approx$  2310 hrs.), 2 adult C. atrox (2222,  $\approx$  2340 hr), 3 juvenile C. scutulatus (2200, 2205, 2212 hrs.), and 1 adult C. scutulatus (2227 hr). Also saw 1 Canis latrans and 1 Lynx rufus on western slopes of the Tucson Mountains.

13 August

Road hunted by myself from  $\approx$  1930 - 2200 hr in the upland desert area described above. No rain, dark moon,



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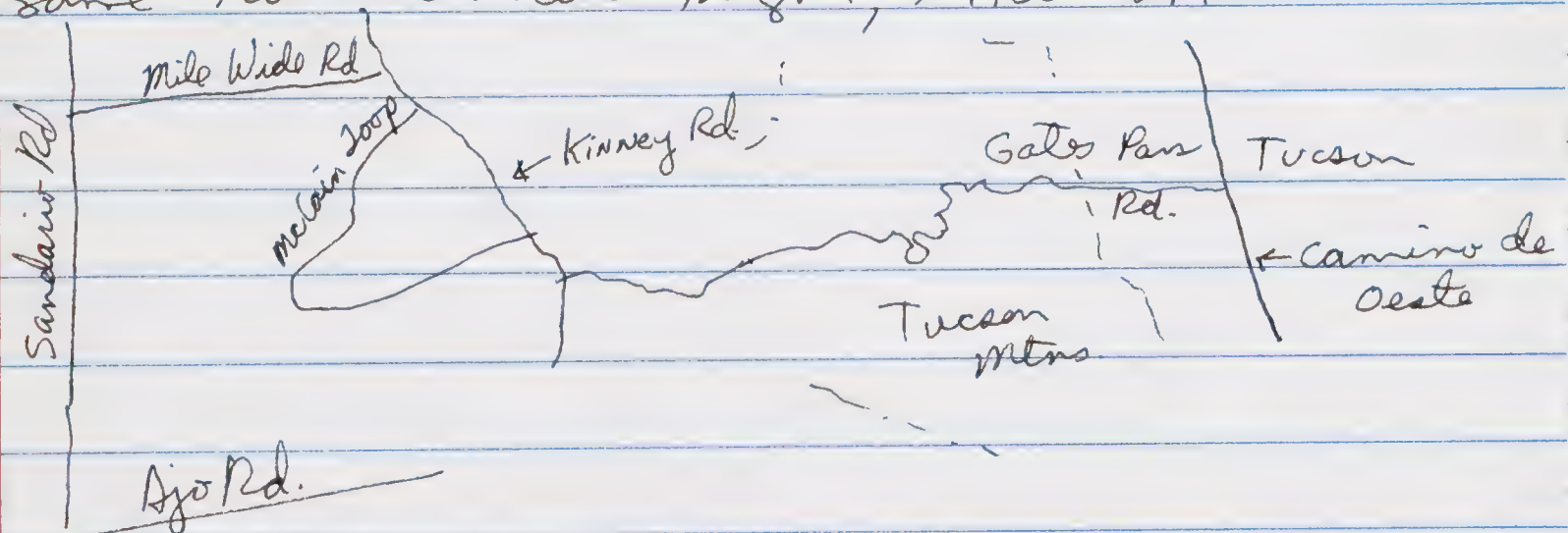
1985

13 August  
(continued)

hot and sunny all day. Saw only two snakes, a fresh DOR Pituophis melanoleucus at 2007 hr on Mile Wide Rd and an AOR juvenile Crotalus atrox at 2018 hr on the McCain Loop Rd (off Kinney Rd.). also saw 5 Canis latrans and a small adult Taxidea taxus, the latter a few minutes after the little C. atrox. Big coyote chorus around midnight at the Hardy's.

14 August

Hot and sunny all day, dark moon. Road hunted same route as last night,  $\approx 1930 - 2145$  hr.



Saw only two snakes, a large ♀ AOR Trimorphodon biscutatus at 2018 hr on Mile Wide Rd. and a juvenile AOR Crotalus atrox on McCain Loop a few minutes later. The lyre snake was in rocky upland desert, lots of saguaros; I picked it up gently and it only vibrated its tail.

15 August

Drove from Tucson to Mojave, California.  $\approx 111^\circ\text{F}$  in the shade in Needles in mid-afternoon.

16 August

Back in Berkeley  $\approx 1400$  hr,  $\approx 5450$  miles later.



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Journal

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Calif: San Bernadino, Siskiyou Cos.



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25 April

Pisgah Lava Flow, San Bernardino Co., California

Arrived here  $\approx 0130$  hr w/ Zoology 165 (Herpetology) class from Berkeley; 27 students, 2 TA's, and 2 guests. Spent the morning looking around the "Pisgah Hilltop" and saw Sauromalus, Cnemidophorus, Uta, Gambelia, Crotaphytus (1 ♀ w/ red, ran bipedally), ~~and~~ Callisaurus, and Dipsosaurus. Yesterday just after dusk Claudia Luke found 2 Bufo on the road. After lunch drove eastward.

Dorner Camp, N. side of Granite Mtns, San Bernardino Co.

Arrived here  $\approx 1430$  hr and spent the afternoon exploring in the rocks. Claudia got a DOR Crotalus cerastes on Kelbaker Rd on the way in. After dinner, took one car and drove to Kelso and back, got only 1 Chionactis.

26 April

at  $\approx 0730$  hr Kathy Devaney found a juvenile Salvadora hexalepis crawling among cholla and shrubs a few yards from the ranch house (umbilical scar obvious, SV, tail, ). Spent the morning exploring boulder slopes and the bajada sweeping NE from the ranch. I saw Cnemidophorus, Uta, and 2 Neotoma. Doug Brown found a beautiful, apparently gravid Lichanura out on the ground among boulders at  $\approx 0830-0900$  (SV  $\approx 725$ , tail  $80+?$ , 330 g). at  $\approx 1115$  hr I found an adult Crotalus mitchelli crawling under a large boulder - rattled when I hooked



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26 April  
(continued)

it out (♀, possibly gravid,  $785 + 67$  mm,  $440$  g, nothing palpable in stomach). at lunch others came back w/ a huge Sauromalus and an adult ♀ Salvadora hexalepis. John Carothers brought in a Crotalus mitchelli found resting under a boulder (♂?,  $1000 + 72$  mm,  $991$  g after meal palpated), from which I palpated a Sylvilagus that had been swallowed head-first. He also caught in a cholla a large Masticophis flagellum ( $1205 + 400$  mm,  $474$  g after meal palpated) from which I palpated a Dipodomys that had been swallowed head-first. Mat Colbert found a Hypsiglena torquata under a yucca log.



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2 July

Pisgah Lava Flow, San Bernardino Co., California

Arrived here  $\approx$  2100 hr, having left Berkeley  $\approx$  noon.

Road hunted for  $\approx$  30 min and saw 2 Phyllorhynchus and 1 Crotalus cerastes; palped a Dipodomys out of the latter and pickled the snake and prey. Met Claudia Leuke and Alexis Schuler, who arrived here several days earlier. They saw an Angora elegans on the road.

3 July

Couldn't sleep because of the heat and flies, so I got up  $\approx$  0230 and went to Ludlow for ice, juice, etc.

Saw a Phyllorhynchus near the RR tracks at 0323 hr.

Woke up  $\approx$  0600, ate some melon, and checked out the mine shaft entrance of Pisgah Hilton for a Crotalus mitchelli Alexis has seen several times. The snake started rattling when I poked in rocks where she indicated, but it is deep in a crevice and I couldn't see it. Had breakfast in Ludlow & then to Granites.

Dorner Camp, Granite Mtns., San Bernardino Co., California

Arrived here to write and relax in solitude for two days. Hot, but not as bad as at Pisgah - only  $\approx$  95 F in shade here. Went to Baker for dinner, then road hunted back and forth on Kelbaker. at sundown I walked up a rocky slope 2.5 mi N. of Kelso, where a large mountain range sprouts down to the road from the W. soon heard a rattling at ~~the~~ my feet, and caught a famished looking little Crotalus mitchelli that was active in the rocks. It struck readily at my flashlight.



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1986

3 July (continued) Didn't have a sack, so took out the batteries and carried it in the flashlight. After dark got an adult Crotalus cerastes and a Coleonyx just N. of where the large Kelbaker Lava Flow intersects the road, then an Arizona and a yearling (?) C. sentulatus on the way back to Kelso.

4 July Spent the day revising a chapter on defense in reptiles. Took periodic breaks to photograph rabbits and observe Ammospermophilus foraging in a 2m high Larrea. Is this secondary arboreality? These aren't any more ground squirrels than Sciurus - their "trees" are just shorter! After dinner drove to Baker for ice and juice, and got 2 Coleonyx (again near where the lava flow crosses road, ~21 mi N. Kelso), 1 Pituophis, and 1 Arizona, all AOR. Arrived at Porter Camp ~2215, to find Claudia and Alexis had arrived a couple of hours earlier.



Greene, H.

1986

27 July Left Berkeley  $\approx$  noon and arrived in Mt. Shasta in time for supper, after getting a room at the Evergreen Lodge. Then drove to Grasshopper Flat, 24.1 miles N. of Battle (Hwy 89) on Harris Spring Rd. Arrived well before sunset, to look for more Phrynosoma douglassii (see R.C. Stebbins notes for earlier this month). Saw only deer, and it seems too cool for lizard activity. Drove 3.2 miles further north to Pumice Stone Well, a very picturesque pond in a meadow at  $\approx$  6100' and just below Pumice Stone Mountain. Walked around looking for Thamnophis, and saw lots of tadpoles and recently transformed Hyla regilla. Flipped many cow pies, and collected 13 Ambystoma macrodactylum under them (saw others). Road hunted from  $\approx$  2030-2330 hr, and saw only one Bufo boreas, one Chasmodon boettgeri, an adult and a young Eutamias together, and lots of rodents (Dipodomys, Perognathus for sure).

28 July



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1985-1989

Journal

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Costa Rica

Calif: Contra Costa Co.

Arizona: Pima, Cochise Cos.

Costa Rica



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15 June

Estación Biología La Selva, Provincia Heredia, Costa Rica

Arrived here  $\approx 1030$  hr, after a  $\approx 2$  hour ride from the OTS office. Much has changed! Road is good all the way to Puerto Viejo, there are soldiers w/ M-16 that check all vehicles entering the town, and there is a new OTS facility on the north side of river from the station.

Left Berkeley early on the 13th, spent the night in Miami to visit Mr Donnelly and Jay and Becky Savage, and got to San Jose  $\approx 1500$  hr. Ran in to Eddie Izquierdo in Miami (he is a friend of Dixie Peison from Berkeley and I met him at La Selva), on his way to visit Maria Teresa Koberg ("TeTe") - a woman who works on sea turtle conservation in Limon. They were waiting when I emerged from customs, offered a ride, and took me on a spectacular side trip on a beautiful new highway to Guapiles. Road goes up over the crest in Braulio Carrillo national park, which was hung w/ thick white clouds and mist. Very steep terrain!

Joanne Sharpe (grad student from U. Georgia, studying ferns, cousin of Dick Sage) took me to see a Lachesis muta that she has watched sit in one spot for 4 weeks (more details later). When we arrived  $\approx 1600$  hr, snake was "gone", leaving a patch of bare soil where it had lain. I began walking in



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15 June  
(continued)

a rough spiral beginning at the pallet, while Joanne stayed put bemoaning the snake's exit. W/in 5 minutes she found the snake, almost hidden under ferns a few cms high! It is  $\approx 1.2$  m N. of the pallet, in a tight sleeping coil. Judging from the size of the coil ( $\approx 25$  cm) and its color (tan, not red of juveniles) I guess it to be  $\approx 1.3$  m. Next we entered Plot 1 (nearly) w/ Diana Liebsmann to look for a large boa she saw last week, and were soon thoroughly lost. Eventually emerged on the Sendero Occidental (we had entered on the Sendero Experimental Sur) 30-45 min later. No snakes. It rained very hard from  $\approx 1830 - 2030$  hr, after which I walked the new Sendero Cartavana, a boardwalk through a swamp in the Ecological Reserve. Moderate number of Hyla straccath and other frogs calling.

16 June

Relocated Lachesis muta in same place as yesterday. The site is a few tens of meters from a plastic lecho at  $\approx 530$  SES, on a heading of  $\approx 210^\circ$  ( $\approx 5$ ). Snake is coiled in same place, w/ head down and facing  $180^\circ$  (S). Jerked once when I disturbed a twig nearby. This was at 0808 hr. Next walked to station, through the Ecol. Res. swamp, out SOC and



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16 June  
(continued)

around the Camino Circular. Saw a fresh foam nest (Leptodactylus pentadactylus?) in the swamp, a few frogs calling, and a fresh pile of plucked feathers at the E. end of the boardwalk w/ no associated tracks. Two types - small w/ white base & red-brown or orangish outer part, and small tricolored, orange-brown, white, and gray at base; and white base w/ black outer half, marked by two white spots. Perhaps prey of a hawk? Very hot and humid day - at least to me! Thinking about Lochesia as I walked today: maybe they mostly die from parasites, at least the big ones. What is the effect of prey specialization on parasitism? Someone brought in a small Microgaster nigrocinereus at lunch (222+28 mm, 2.7 g, no food); it thrashed, bit readily, and prolapsed the cloaca when seized, but coiled the tail only w/ repeated on the head and body. Bob Margins (U. Illinois) brought in a Bothrops nasutus from 1400 LOC, found this morning (282+29 mm, 17.3 g, gravid - several small ova, no food). Collin Orians (Penn. State U.) took me to  $\approx 650$  CES, where this AM he found a B. nasutus, which we located  $\approx 1330$  (320+28, 20.5 g, no food, possible enlarged ova). The little viper was in a



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16 June  
(continued)

tight coil at the end of a rotten fallen limb  $\approx 10$  cm in diameter, facing the ~~end~~ length of the limb -  $\approx 1$  m, ending at a large fallen log. Snake jerked to alertness when touched w/ a snake stick, suggesting to me that it was asleep. Viper was in a good position to strike an oncoming rodent, which perhaps it would only do at night. While walking out to see that snake, at 1302 hr, I spied a Leptophis <sup>(735 + 465, 54g)</sup> nebulosus going into a crack/hole/litter at the base of a buttressed tree beside the trail at  $\approx 100$  CES. Snake proflapsed the cloaca & thrashed when grasped, emitting a foul and distinctive smell (vaguely like agkistrodon). As soon as in the open it gaped widely, orienting to my moving hand, and struck and bit at close objects. At 1400 hr, I was sent to the bathroom below cabina #3 where there was a Leptodeira septentrionalis on a baseboard, in the dark behind the door (480 + 126, ♂, 16.0g, no food). This morning was sunny, hot, humid, but by 1500 hr it is dark and there is loud, long thunder. Rained until after dinner. Went w/ Joanne Sharpe to see the young Lachesis, which at 2010 hr was in the raised alert posture, facing E, and on the "original" pallet at the tree base. Thus, sometime since this morning she had



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16 June  
(continued)

moved from under the Danaea fern. Saw several hylids on wet leaves along the trail.

17 June

Left at  $\approx 0700$  w/ Diana Ziehm, Victor Robles, Tibby Knight and her brother David (she is a Berkeley undergrad in the EAP), and Mark? (ABC reporter from San Diego soon to travel w/ the contras and Sandanistas in Nicaragua. We walked to Plot III,  $\approx$  a 45 min walk on the SSO, where deep w/in the plot they saw a matabuey and a terciopelo yesterday. It is steep terrain. The Bothrops asper was  $\approx 1$  m and under the edge of a small chunk of log in a dense, rank treefall on a steep slope. The snake wasn't there today. The Lachesis muta was largely concealed under a dry fallen Welfia frond,  $\approx 2$  m from an old fallen tree and  $\pm 7$  m (about equidistant) from two adult Welfia. It was asleep, but when I lifted the frond it pulled in its coils and formed a tight, elevated striking coil. The first reaction to me lifting it in the air was slow crawling, but after I failed to get it in the trash can on the first try it slid to the ground and assumed an open striking coil. Neck & anterior was flattened in a vertical plane and the whole body seemed inflated. It took 2-3 long strikes at me, impressively long!



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17 June  
(continued)

Took  $\approx 10$  minutes to finally get it in the can, and I never saw it tail vibrate. No other snakes in  $> 2$  hours of walking. Overcast. Joanne Sharp checked the Lachesis muta at CES 530, and it was back under the Danaea fern w/ head facing  $\approx N$  (opposite ~~the~~ direction from the site it was hunting last night. It rained hard for  $\approx 2$  hours this afternoon. I checked the snake at 2005 hr and it was back at the open site, 1 m from the fern bed, at the base of the small tree and facing E. Very alert. Walked through the new swamp; saw and heard Hyla lognax. at  $\approx 2200$  saw a nice big Smilisca baudini on the bridge railing on the dining hall side, where vegetation comes up to the boardwalks.

On June 12th Rebecca Butterfield saw a large multispecies frog chorus in the new swamp (~~Cerro~~ Sendero Cantarana), including hylids, Agalychnis callidryas, and a couple of Leptodactylus pentadactylus. She described 2 slender yellowish snakes w/ blunt heads and big eyes and were surely Amantodes inornatus; both were on branches overhanging the boardwalk, and one was sagging w/ a large food mass.



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18 June

after breakfast, measured the big hachesis mutes:  
1720 mm SV, tail 175 mm, 3.75 Kg.

She seemed moderately aggressive, repeatedly forming a striking coil and keeping the body inflated and vertically flattened. She(?) seems exceptionally heavy, but the people helping me hold her couldn't palp eggs or food of any certainty. Before breakfast the workmen found a Leptodeira septentrionalis under a tire at their shed, on the edge of second growth (523+149 mm, 27.3 g).

It assumed an exaggerated S-coil, expanded the head posteriorly, and made slow outward strikes. Tried to bite when seized. It had recently eaten a hyliid w/ green bones, SV 38 mm, max head width 10.5 mm, 2 g.

after lunch, went out 50~~E~~ and into Plot I to photograph a large spider, feeding on what had been a yellow hyliid(?) in its web. Diana Tiebermann had found them this AM, when the frog was largely intact. Left at 1600h to check the hachesis on CES.

at 1616h, 250 CES, caught a Leptophis ahaetulla (♀ possibly gravid, 840+530 mm, 105 g) crossing the trail on a grade. Snake immediately prolapsed the cloaca, emitting a strong odor very similar to the L. nebulosus earlier this week. Thrashed laterally and along its long axis, gaped



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18 June  
(continued)

and repeatedly swung round to bite. At 1622h found the L. muta asleep in ferns, head facing W. Very still and humid, no rain yet today. Lots of snakes lately: Rodolfo (Cathy Pringle's assistant) brought me 3 young Bothrops asper (not neonates) yesterday (no food) and Orlando saw another today. Joanne saw an adult Pseustes poecilonotus in tangle behind the baño of the Old Station, which inflated its throat, and a Chironius grandisignatus out on a trail. Danilo Brenes saw a young Felis pardalis cross the Sendero Jaguar this afternoon and tracks, probably of the same species. He saw tracks of Felis onca on the same trail 8 days ago. After dinner walked out to check the hachesis but couldn't find the site in the dark. Cursing back along the trail I found a nice male Hyla refitela on a leaf a few cm above the ground. Hot, humid day, no rain.

19 June

A hot, sunny morning. As early as  $\approx 0620$  there was a large ♂ Iguana iguana in a relatively small Cecropia, <sup>(this is on E. side of bridge)</sup> sunning w/ dewlaps out.

Seemingly in prime and freshly shed, w/ a small patch of skin hanging on one foreleg. Gave one bout of bob as I watched. It was perpendicular to the rising sun. When I returned to shoot pictures at  $\approx 0815$ , saw



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19 June  
(continued)

a ♀ adult Iguana a few tens of m away at  $\approx$  height, on the limb of a large tree in shade. Numerous Rhinoclemys basking on dead logs in the Rio Puerto Viejo, and an adult Caiman crocodilus on a fallen live tree that extends on the bank to river's edge. It had its mouth wide open. Joel gave me another baby Micromys nigricinctus, caught near the workman's shed in the new complex. Beth Braker walked to the South Boundary this morning; she brought back a Felis scat and saw a Mastigodryas melanolorus eat an Arreiva festiva. Met Renaldo Aguilar, a guard or ranger for the Zona Protectora, who told me of finding tracks and a kill of a sloth by Panthera onca. Took him to see the Leodesia muta at CES 530, and found it asleep under the Danaea and facing SSE at  $\approx$  1400 hr. Sunny almost all day, but dark clouds and distant thunder at 1740 hr.

20 June

Rained during the night, morning hot and humid. I am lazy and grouchy!  $\approx$  1000 hr checked the Leodesia muta at CES 530 - under Danaea, head pointing W. At 1040 hr Gerardo Vega directed me to a large Pseustes psacilonotus stretched out in grass near a Heliconia patch in the station clearing, near Cabina #1 (it was



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20 June  
(continued)

thus w/in a few meters of the origins of SOR & CES, where I have caught Pseustes in previous years. Snake has one healthy tick and a large puncture-wound like scar on its neck, no food, 1390 mm SV, 555 mm tail, ♂, 887g. When seized immediately swelling round (it had tried to crawl away) w/ jaws agape, body inflated, bit my jeans and hung on. Repeated handling resulted in emission of a "musk" somewhat reminiscent of Elaphe obsoleta (which Pseustes reminds me of in various ways). After dinner ~10 of us went to a dance in Chilanate, a few km west of Puerto Viejo. It was held in a school, as a benefit. We sat on benches and tiny chairs around "strange little tables" that turned out to be desks! The only free space was in a corner, near the orinal, so we were treated to a stream of horrors. The walls of the school are corrugated metal, and little kids were using a ladder to ascend the wall and peer into the dance hall. We paid 200 colones per male and 100 colones per female to attend, entering through a checkstand of a little table. In one corner was a stand for beer and other drinks, run by ~5-6 men, including Rinaldo Aguilar. The place was packed. (see below, 21 June) There were speakers everywhere, such that the benches pounded with music. The band alternated ~2 fast, Latin beat songs w/ very slow



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20 June  
(Continued)

"musica romantica." Ticos seem to have two speeds, one of which in comparison to guingo dancing is faster but w/ less lateral movements of the arms and legs - more ritualized. The other is extremely slow, and a strange sort of two-steps. Both my speeds are in between them! The custom is that males ask women to dance, and they rarely refuse. Mouthy regions like this, Carmen told me, the men tend to be especially pushy and expectant, and to dance especially physically. One couple stood out by their apparel & dancing: he rather typical, w/ shirt open to the waist except for clean dress boots worn over pants like a horseman. She wore a bright red pant suit, black boots, and a small black, sort of modified bowler hat. They danced round the whole room, always arms around each other, and the ticos in our group clearly considered them a little unusual. Carmen and I decided independently that she had a certain resemblance in facial features to an Andean indian. A nice aspect of the evening <sup>was</sup> that there was quite a mix - La Selva researchers, ticos and guingos; ticos I knew in past years who live



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20 June  
(continued)

nearly and no longer live at La Selva, like Jaime (who was w/ Ricky Van Birkum) and Freddie (who was w/ Gretchen Braker). park service personnel, some of whom like Renaldo we knew already and some to whom we met for the first time; and local people. Periodically the band dedicated a song to persons or groups, e.g., "a Carmen y sus amigos" and ~~to the~~ "a la gente de O.T.S." On the way home, Roberto Cordero, the station manager who was driving, and ~~Rocío~~<sup>Rocío</sup> Lopez sang passionate songs and the windshield fogged periodically. Finally got in bed, very damp (we were all drenched in sweat long before the dance ended), ~0100h.

21 June

at ~0150h Phil Robertson woke me w/ a knock and the news of a small *Terciopelo* downstairs by our bathrooms. Pulled on pants and shoes and went down to discover a large Leptodeira septentrionalis crawling in a corner. Perhaps we should rename this species culebra del baño, as it is the second such find in a week! 630+189mm, 55g, ♀. It's only response to handling was rapid crawling, writhing, and ejecting a rather foul smelling liquid from the cloaca. Walking back across the bridge after a late breakfast,



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- 21 June (continued) I noticed an adult Caiman crocodilus out on a mud bank in partial shade, and numerous Rhinoclemmys cf. furcata basking in full sun on emergent tree trunks in the Rio Puerto Viejo. A hot and sunny, partly cloudy Sunday morning! Chattered all afternoon, except for a trip to the water fall. Brief rain in the late afternoon. Checked the Lachesis muta at CES 530 at 1929 hr, found it alert under the S. side of the tree, facing S (i.e., towards the fallen log. (Forgot to mention that there were bats flying through the room throughout the dance last night, suggesting to us that it would be a great place for a Halloween Party!)).
- 22 June To San Jose this afternoon, including great view of canyons on the edge of Braulio Carrillo.
- 23 June To the "Serpentarium" - Instituto Clodomiro Picado - w/ the O.T.S. class for lectures and demonstrations. Dinner at a nice little french restaurant near the Universidad de Costa Rica, w/ Carmen Rojas.
- 24 June Up at 0530 to drive to Golfito w/ the O.T.S. course. Palmar del Norte, Prov. Puntarenas, Costa Rica Stopped here for a picnic lunch in early afternoon, in a little park (w/ gazebo) across from the air strip. Saw several adult ♀ and ♂ Gonatodes albogularis active on large trees in the park.



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24 June  
(continued)

Goffito, Prov. Puntarenas, Costa Rica  
arrived here  $\approx 1530$ h, at the field station "Las Alamedas," run jointly for the U. C. R. and the U. of Kansas. It consists of the grounds of a former United Fruit Co. operation, right on the Golfo Dulce, and an adjacent forest preserve that apparently is intended primarily as watershed protection. Before dinner, Gene Suge Bruce Williamson and I took a ride to the top of a ridge above town to see lay of the land. We walked around some kind of relay tower, el. 505 m - great view of steep forested hillsides, the gulf, and in the distance the Osa Peninsula.

25 June

Pia Paley and I lead to orientation walks for 2 hrs each in an area of second growth and forest edge, NW (?) of town a few km. Drove through cattle pasture, then walked on a mowed track, then walked two trails. Saw only Anolis early in the morning, but later several juvenile and adult Ameiva festiva. Photographed a pretty Eleutherodactylus (cf. regulus?) sitting on the end of a mossy stick, huddled as if conserving water, under a shrub at trail edge in second growth and a few meters from a stream. Got a pentadactylus-like Leptodactylus hiding under large dry leaves nearby. at 0937h I grabbed a Tartilla melanocarpa (236 + 84 mm) <sup>3.9 g</sup>



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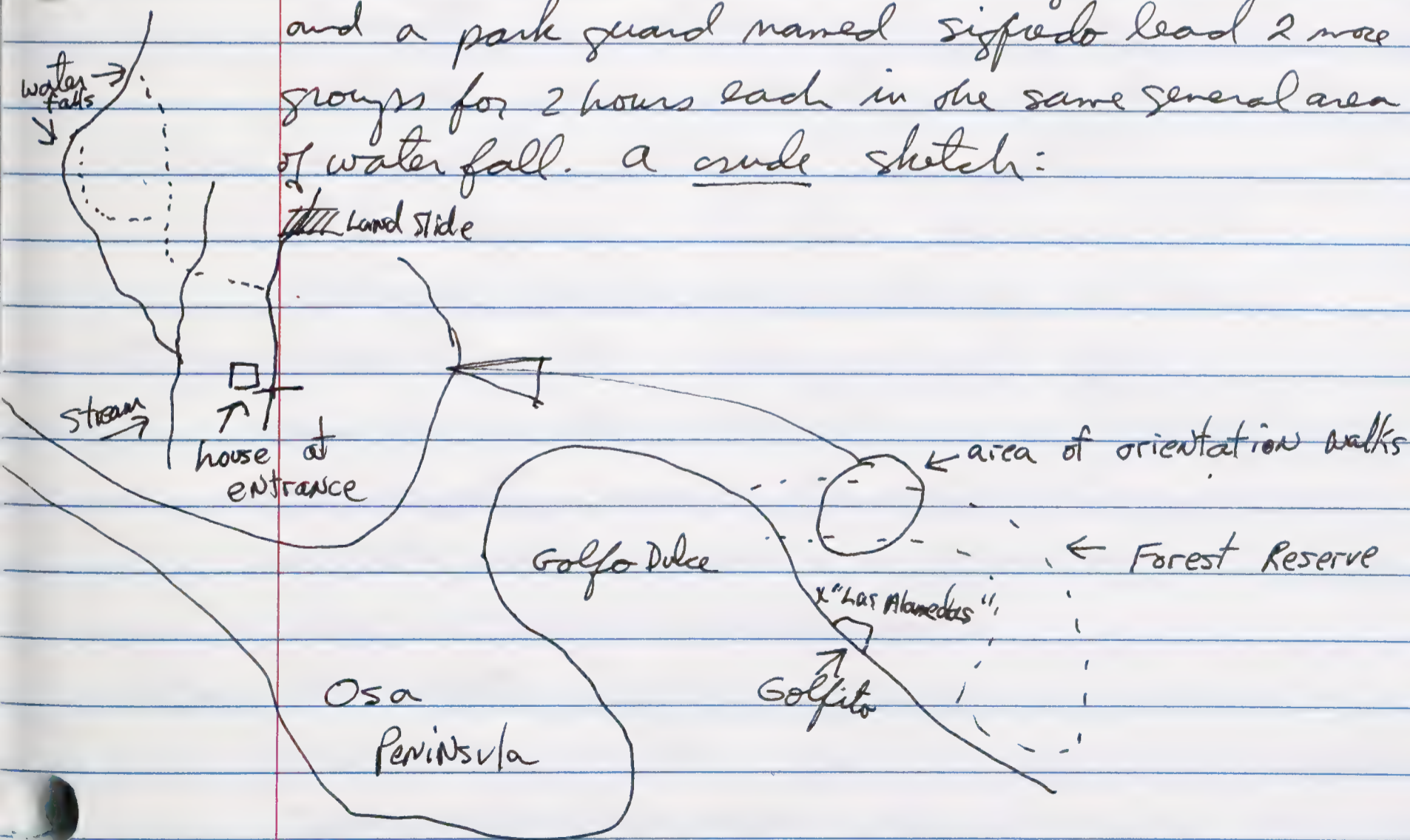
1987

25 June  
(continued)

as it crawled off trailside into leaf litter. Only reaction to handling was to squirm. Walked to a fine waterfall  $\approx 1030$  hr. Multiple cataracts over a broad vertical rock face, maybe 10m high, w/ a pool at the bottom. We saw two juvenile Basiliscus basiliscus in vegetation and wet rocks,  $\approx 2$  m above the pool, and 2 juvenile Bufo haematiticus on wet, mossy boulders at poolside. Morning was hot and sunny, by 1430 it is overcast.

26 June

The routine here is up  $\approx 5:45$  for breakfast at 0600, then begin activities at 7 AM. Today Pia and I and a park guard named Sifredo lead 2 more groups for 2 hours each in the same general area of water fall. a crude sketch:





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1987

26 June  
(continued)

Saw only Anolis and Ameiva on the trails, and several juvenile Bufo haematilicus around the big lower waterfall. Afternoon and evening devoted to indoor exercises and lectures.

27 June Lia and I lead a field problem on observational study of behavior in the general region of the waterfall. We watched a Xenophastus swainsoni casually, and did focal animal and instantaneous sampling on Anartia fatima butterflies in an open stretch along the main stream, and on 7 juvenile Basiliscus basiliscus at the waterfall. Again saw Anolis and Ameiva on the trails, and Bufo haematilicus on wet rocks among moss, at the waterfall. Indoor activities in the afternoon & evening.

28 June a repeat of yesterday's field problem, w/a different group. Nice long shower in the afternoon. Indoor events afternoon and evening.

29 June Students are doing group projects w/out us. One of our drivers brought me a Stenoeschina degerhardtii found on the road at the NW edge of Golfito, still alive but w/a broken neck at ~0800 hr. (77g, 510+122 mm, photographed).

30 June Left Golfito at ~0830 hr, arrived in San Jose in a driving rain ~1430 hr, w/only a stop for diesel fuel. Just me and the driver, Marcel Fonseca, who told me there's lots of communism around Golfito and that our President Reagan doesn't like the poor.



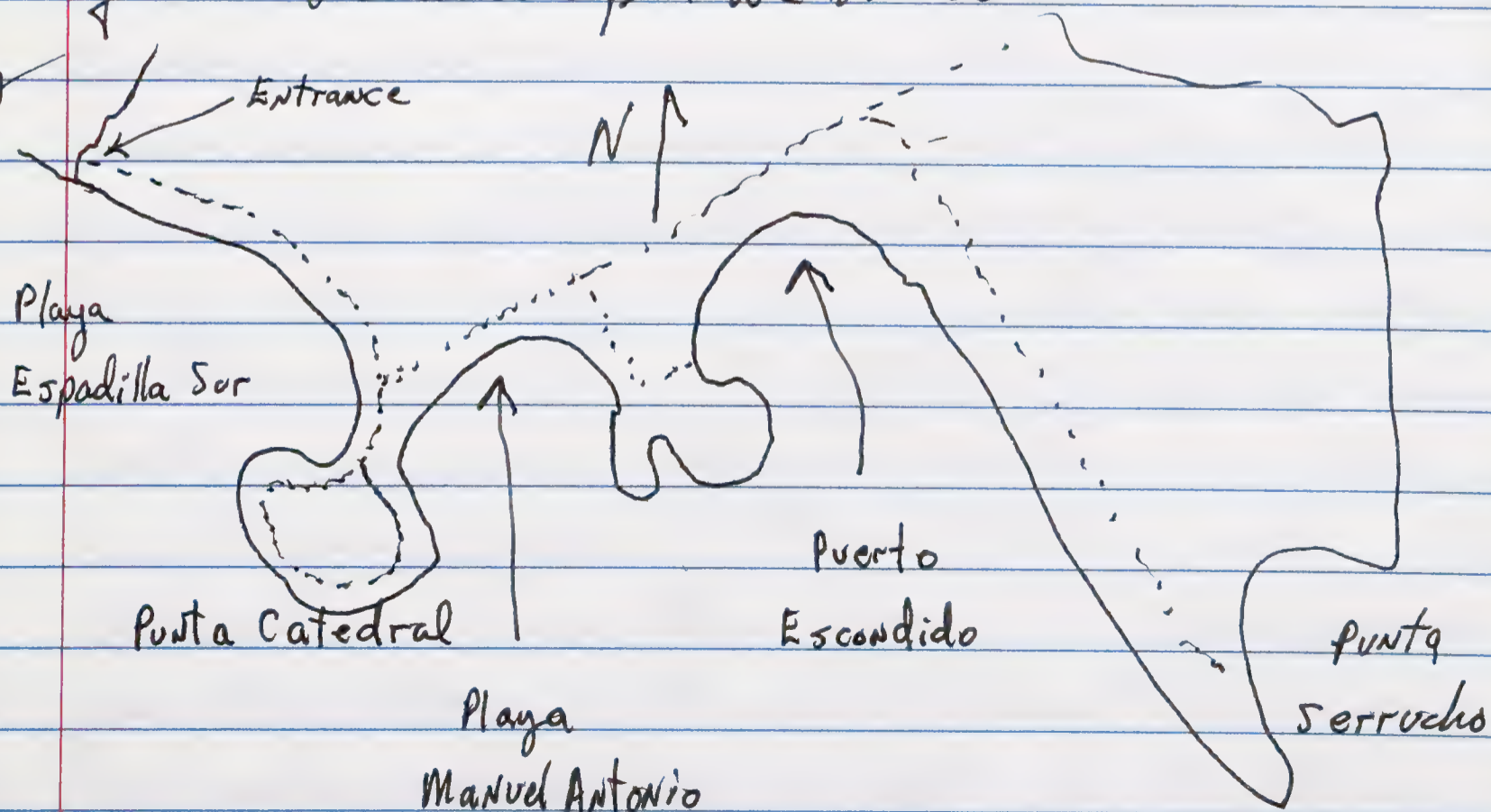
Green, H.

1987

1 July

Parque Nacional Manuel Antonio, Prov. Puntarenas, Costa Rica  
arrived here and took a room at the Hotel Manuel Antonio at  $\approx 0900$  hr, after a fast and uneventful flight on "Sansa" to Quepos. w/ Beth Newell, a Stanford U. postdoc who works at La Selva, and we initially had some confusion over a room because we wanted two beds - finally ended up for the same price in a room ~~of~~ w/ four beds. Went for a walk into the park, which basically consists of four bays w/ beaches and the adjacent forest. After a rest we went NW from the hotel along a road that parallels the shore. Saw several juvenile Ctenosaura sunning on the road and nearby rocks, and a couple of Ameiva (not festiva - A. quadrilineata?), and one smallish adult (?). A fine dinner of fish, ceviche, and a giant quasi banana split we shared.

2 July





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1987

2 July  
(continued)

We left  $\approx 0830$  for the park, intending to walk to Punta Serucho,  $\approx 2.5$  km. Learned at the headquarters that we couldn't use that trail until 11 AM (use is timed to low tide because of dangerous currents). Instead walked the trail around Punta Catedral, which took  $\approx$  an hour.

Nice forest, tho we saw only Ameiva (cf. festiva) and Anolis, and literally hundreds of spectacular land crabs - dark red-brown carapaces, bright orange legs and yellow eyes (or at least eyespots).

Sitting on the beach at the end (ie., Playa Manuel Antonio) we watched a very healthy looking, large male Ctenosaura similis ambly along the forest edge, frequently seizing some whitish object (fruit?) from the leaf litter and swallowing it w/ a few jaw movements. At 1100 we entered the trail to Puerto Escondido, which winds through forest then emerges after a steep slope onto a rocky beach. Whole loop took us 2 hours, including the time spent being lazy on the beach. Later this afternoon we went back to Playa Espadilla Sur to swim (best waves) as a thunder storm came in. We got back before it hit at  $\approx 1600$  hr, and watched a tremendous two hour downpour from the balcony of the Hotel Manuel Antonio.

(see below)

8 July

Up early and to the "airport" for the Sanza



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<sup>4</sup>  
3 July (continued) flight to San Jose. at the airport we saw a Beachcraft (?) under guard w/ flat ties, and later read in the newspaper that they had been shot out in an enormous cocaine bust. Uneventful flight and back to the Hotel Galilea and breakfast in San Jose by 10AM. Shortly after I started out and ran into Jan Jansen, then had a visit w/ him before going to lunch w/ Beth. While having coffee at the Parisien Cafe, we met unexpectedly Mike and Patricia Fogden, on their way to the states.

3 July Forgot this day, which we took lazily. Went back to ~~Puerto~~ Cathedral and photographed crabs. Saw one that had been partially eaten.

5 July Caught a 9AM bus, had a terrific view of Brablio Casillo N. P. Then a long, slow trip via Rio Frio and arrived at La Selva in time for a late lunch  $\approx$  1230. at 1616 hr I found the subadult Lachesis muta under the Danaea fern, just as I last saw it two weeks ago! Earlier,  $\approx$  1400 hr, watched two Lutra longicauda hunting in the Rio Puerto Viejo, from the La Selva Bridge. They dived frequently, seemingly searching undersides of partially submerged logs. at least twice one of them caught some sort of large crustacean,



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5 July  
(continued)

large enough it seemed to more than fill the mouth, and the carapace of which could easily be heard cracking from up where we stood. Once we could clearly see that the legs were removed, seemingly by either gnawing or slamming against the log or both. Two large trees a few tens of meters apart were searched in less than 10 minutes, and at least two prey were caught at the second. The two seemed to hunt independently, but several times mutually approached and contacted each others' heads.

6 July

A cloudy, drizzly morning - rain supposedly started  $\approx 0100$  hrs. I actually thought of getting a blanket during the night. Checked the Lachesis muta at CES 530 at 1600 hr - under Danaea.

7 July

Overcast w/ sunny spots. Walked out to Holdridge 225, where yesterday Rodolfo saw a Bothrops asper on the trail. Saw it at 0815 hr, loosely coiled on the trail at E edge (successional plots), facing into the trail and seemingly asleep. Took pictures. It is an adult, perhaps 1.5-1.7 m total, brown and gray, and very skinny. Judging from length and tail shape, it is a female and perhaps recently gave birth. Walked back to the CCL and went around the loop. Missed what was either a Dendrophidion or a juvenile Masticodytes when it dashed under the boardwalk at  $\approx 0840$ . at 0859 hr, CCL 950m,



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7 July

(continued)

I snatched a Leptophis ahactulla as it lay immobile in shade on the trail. Do they freeze as one approaches? It is a gravid ♀ (4 eggs), 840 + 535 mm, 81 g. Thrashed, gaped, and cloacal discharged while handled, and glided quickly away when released into foliage. At 0947 hr found the Lachesis muta at 530 CES, under the Danarea fern. At 1930 hr. Mauricio called me to a snake crawling into <sup>(on ground)</sup> leaves of a Heliconia plant in front of the AC hab, which turned out to be a very large Leptodeira annulata. It thrashed, spread the quadrates, and ejected a smelly slightly cloudy fluid from the cloaca (570 + 152 mm, 95 g, no food, gravid female). Rained most of the afternoon and into the evening, and I saw several juvenile Bufo marinus while walking back to the cabina after dinner. I wonder if L. annulata is more an edge species than L. septentrionalis - and what about the Bufo? I have found B. marinus here in deep forest, but perhaps it has to move to more open areas to breed...

8 July

At ~0800 walked out to Holdridge 225 to check the Bothrops asper, w/ Rob Colwell and Ann Greig. Yesterday Ann and her sister Nancy had twice walked w/in a meter or less of the terciopelo w/out seeing it. This morning we met Bev?

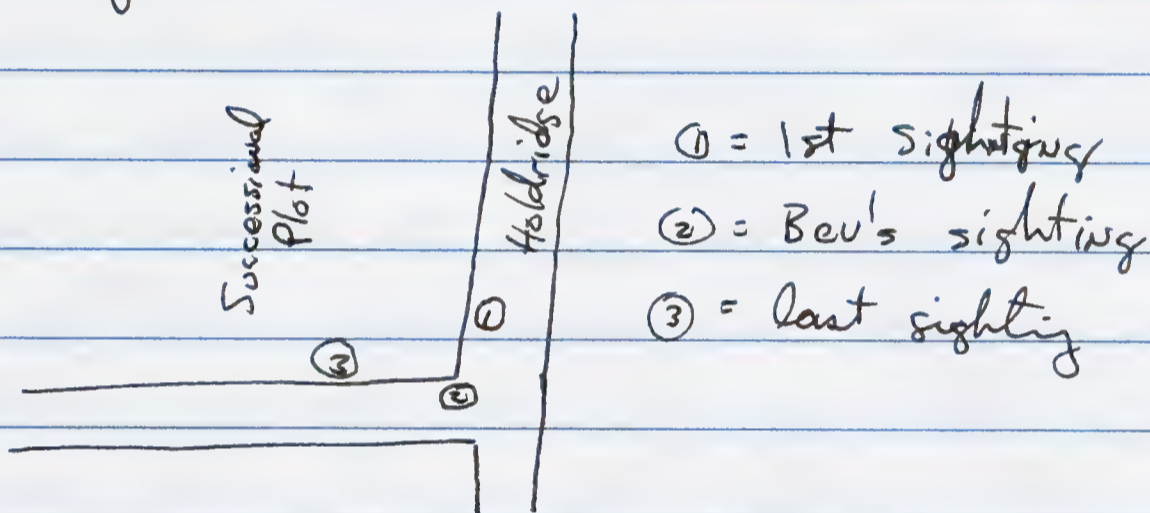


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8 July  
(continued)

a Canadian, who had just seen the snake, but when we all arrived the snake was gone. Bev had seen it 10 minutes earlier,  $\approx 2$  m from where I spotted it yesterday. Looked around and found the snake just into a successional plot and loosely coiled,  $\approx 1$  m from where she saw it.



Started raining as we walked out, and continued all morning. Rain slowed, then ceased in early PM. at 1515 hr. the Lachesis muta was coiled under the Danaea fern at S30 CES; for the first time I have the distinct impression from overall girth and exposed skin between scales that it has eaten. At  $\approx 2045$  hr went back w/ 3 students from the OTS course (which arrived today) and found the Lachesis in the "hunting spot," facing the fallen tree. It's head and neck were in an S-coil, but the head was not at all raised and was w/in the outer body coil. We did not linger nor disturb it, but I did not get an impression of a food lump. Rained all evening.



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1987

9 July Sunny, partly cloudy, hot by mid-morning.  
Walked out to 225 Holdridge, <sup>~ 0915hr</sup> and found the  
Bothrops asper still in dense vegetation, just  
off the path next to the successional plot ("3" on  
previous page). I gently lifted a blade of grass  
for a better look, and the snake moved its  
head slightly. Judging from Alejandro Solorzano's  
data, this is too early to be a spent female  
- so I wonder why she is doing so poorly? If  
for whatever reason, she is starving, it is an  
interesting counterpoint to my notion of large  
viperae as not generally having intense energy  
problems. At 0945hr checked the hachesis muta  
at CES 530, and found it under the Donax  
fern - and not, today, seeming impressively  
fullsome. W/respect to Leptodeira annulata,  
I was thinking this morning about the fact that  
it is a stocky spotted snake, yet repeatedly  
tried to escape by crawling - a contradiction to  
Jackson et al.? The point is, it didn't escape  
that way, whereas a striped or unicolor  
Mastigodryas would likely have succeeded.  
Just after lunch (1240hr) I was summoned that  
there was a large snake on the bridge - ran  
over to see a Spilotes pullatus descending  
slowly a Cecropia tree, so I hung over  
the edge and grabbed it by the posterior.



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9 July  
(continued)

By the time I stood up it was chewing fiercely on my pants legs. Carried it back to the mess hall to show students. Even when held by the head it readily tried to bite an approaching finger. When I released it on the ground it inflated the bulbous throat and inflated/vertically flattened the foreparts, and moved them to orient to a person moving nearby. At one point it turned and when I stood up seized the crotch of my jeans.

Much of the time I was handling it the snake rapidly vibrated the posterior 200-400 mm of tail. Although I only noticed one small blob of cloacal contents, it ejected a mildly strong and mildly offensive odor, which clung to my T-shirt for sometime thereafter. This morning R. K. Colwell and a group of O. T. S. students were in the Ecological Reserve Swamp, on the Sendero Cantarana, when they observed a Leucopernis semiplumbeus fly off w/ an Agalychnis callidryas. This was during a dense daytime breeding aggregation of these frogs.

10 July

at ~0830 hr Gene Shoops found a small Bothrops schlegelii (413+70 mm, 30 g) coiled on a branch at the end of a small limb, ~2 m above damp mud on the W edge of the swamp in



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10 July  
(continued)

the Ecological Reserve, beside the Sendero Cantarana boardwalk. He perceived several prominent protrusions suggesting multiple prey items. I caught the snake  $\approx 1400$ , at which time there was a single large,  $\approx$  fusiform bulge. At  $\approx 1845$  hr I palped a bat (165g, one wing largely digested) from the snake. Seems that the bat was eaten early this morning, perhaps as it returned to a roost that had previously been located by the snake chemoreceptively. At  $\approx 1500$  located an adult Lachesis muta at CCC 700 that Joseph Connell told me about. The snake is  $\approx 2$  m long, healthy and fresh shed looking, and  $\approx 20$  m off the trail behind an old fallen tree. The snake was near the base, lying on a ledge of soil under the edge of the log, quiescent. Rained heavily as we walked back in and out to 530 CES, where the smaller L. muta is still under the Danaea fern. Both Dave Hardy (who w/ Jan Tate arrived today) and I thought it might be in pre-shedding condition. Rain continued into the night.

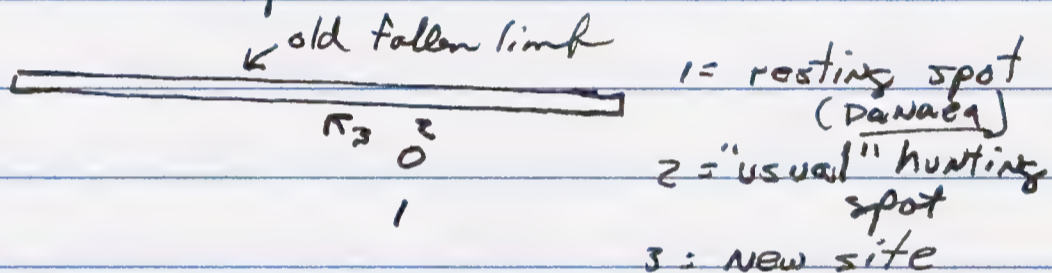
11 July

Partly cloudy, some sun. Walked around the Camino Circular, and found the L. muta at CCC 700 as was yesterday, except head had changed positions. Checked the Bothrops asper at Holdridge 225, and found it in



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11 July same place as before ("3") and still alive - it moved the head slightly when I moved a nearby leaf w/ a snake hook. Dave Hardy at first thought it dead, for good reason - the mouth slightly ajar, seemingly w/ a little dirt in it. at  $\approx 2030$  hr found the Lachesis muta at CES S30 out "hunting",  $\approx 30-50$  cm to the side of its tree, a new position:



It's ~~the~~ head was aimed at an angle to the rotten limb (3, arrow).

12 July Left at 0800 and walked the CCC, out CC, across the CS and back in on SHO & SOC. The Lachesis muta at CCC 700 is in the same place but its head now is easily visible & facing out. When I got fairly close for a photo it flinched. Saw cat tracks, possibly Felis pardalis, on the eastern edge of the Sendero El Sumpo in two places several tens of meters apart and traveling west - none on the Holdridge, although there were several muddy places where we might have picked them up. Found the Bothrops asper at Holdridge 225 at the same place but a few cm further into the vegetation.



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12 July (continued) and harder to see. I did not disturb it and saw no movements. Walked out the CES to check Lachesis muta at 530 m - asleep under the Danarea - and caught a green/lichenose Norops capiti near the ground on a green trunk sapling next to the 200 m marker. Partly cloudy, no rain, river way up.

13 July Left at 0800 hr w/ Dave Hardy, Jan Tate, David Carr (U. Maryland) and Joe Bernardo (Duke U.). Checked the big Lachesis muta at 700 CCC, and found it concealed under the opposite side of the fallen log (trail side). The Bothrops asper at 225 ~~at~~ Oldridge was dead, limp, and only slightly smelly - few bugs. It weighed 760 g, 1530 + 235 mm ♀. Dissected it later and found general emaciation - no fat, organs and somatic musculature seemingly reduced. There were several large, pale, slender worms on the surface of the lung (saved - acanthocephalans?). Dave found that one mandible had a fracture healing poorly, i.e., slippage of the parts possible. We surmise that maybe she starved because of the injury, perhaps exacerbated by the parasites? Earlier, at 0856 hr, I grabbed a  $\approx 1.6$  m Pseustes poecilonotus at CCC 450 as it crossed the trail. It tried to crawl, then bit fiercely. Only got the full defensive display by holding it by the tail



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13 July  
(continued)

While Dave Hardy poked it w/ an umbrella. Then it inflated the neck, spread the quadrates, gaped widely and struck repeatedly. Bit whenever it connected on the sticks. At 0932 hr grabbed a <sup>3 eggs</sup> Dendrophidion <sup>63g, 582 + 421 mm</sup> percarinatum ♀ at SHO 440 m - it crawled frantically, seemingly inefficiently, and thrashed and inflated the body when seized. Inflation caused light skin to appear, but not dramatically blue as in D. vinita. Checked the stump on the Sendero Sabalo - Esquina where in  $\approx 1982$  Manuel Santana and I found 2 Bothrops asper, but no snakes. at  $\approx 1980$  m on that trail we found an adult gravid ♀ B. asper where Gene Schoop spotted her yesterday. Site is a huge tree fall that cascades down a steep slope to the trail, which is bounded on the East by the stream. There is a huge pile of sticks (branches) at trailside, and the snake was in a loose coil at  $\approx 1.5$  m about trail and facing it. Dark rich brown, w/ a very yellow head and white chin. During  $\approx 10$  minutes in which the four of us milled around its only response was an occasional tongue flick. One of the most impressive snake scenes



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13 July  
(continued)

I have seen here! Up to this point it had been partly cloudy w/ frequent bright sun, but as we started back  $\approx 1020$  hr, a hard rain started that didn't really let up til after lunch.

14 July

Rained most of the day, so worked in lab. at 1600 hr went to 530 CES and found Lachesis muta under the Duraoa fern. Set up Jan's remote photography stuff, only to find that for some reason it wouldn't fire. Started raining at  $\approx 1800$  hr. At 1837 hr the Lachesis head appeared (by now it was virtually dark), and for ~~23:56~~ min 56 sec it crawled out into the area where it hunts, then back into the Duraoa, then into the forest  $\approx$  SE of its site. While crawling it frequently tongue-flicked, pointed its snout at the ground, and turn the head side to side. At least twice it lifted its head up a few cm to inspect low palm leaves. Thinking it would disappear, we caught it. When Dave and Jan went back for the car they caught an Oxyrhopus petola on the trail ( $\approx 1930$  hr, CES) - said its only response to them was rapid crawling. As for the Lachesis, hopefully we had the good fortune to see this snake initiate a site change. An alternative possibility is



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14 July (continued) that our presence caused it to move, but I think that unlikely because of its behavior (apparent searching, not flight) and the fact I've had no evidence of such effects w/ this Lachesis or others in the past. I am wondered if it was bothered by the rain (water had pooled under the Danaea), but it has rained many times in the past w/out this or other Lachesis moving.

15 July Spent the morning preparing a receiver and transmitter - Ch 3, 27.575 (frequency). Temp. calibration (beats/100 sec) 26.4°C, 92; 30.4°C, 111; 32.8°C, 124; 33.6°C, 134; 37.0°C, 154. Processed the snake right after lunch: SV 1370 mm, tail 144 mm, 1.8 kg. Snake never got especially riled up, but while we were measuring it protruded and retracted one hemipenis. Just as we finished it spontaneously evacuated a large fecal and uric acid mass, both very wet. Spines of Proechinops (or less likely Heteromys) are clearly evident. Less than an hour later we released it on the Danaea fern, and its responses to gentle prodding w/ snake stick were to crawl or to cover its head w/ a coil and elevate and gently sinuously wave the tail, while periodically ( $\geq 3$  times) extending and retracting the hemipenes. Then we walked out to Sendero



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15 July  
(continued)

Sabalo - Esquina but could not locate the ♀ Bothrops asper that was on the treefall day before yesterday. (Today was the first day w/ lots of sun in a long time, so I expected to see her). On the way out, on Sendero Oriental, we saw a troop of Ateles, and on the way back a troop (same) and not far away a lone ♂ Alouatta. At ~1630hr Beth Navell pointed out a small brownish slender snake crawling off the trail, so I slapped a hand down as its head went under a leaf - then released it was a very small B. asper and let go fast. Pinned it at midbody 2-3 times and it never struck - uncharacteristic for small Sceloporus, and I learned a lesson. In the evening heard a talk by a group of Cunha Indians from Panamã.

16 July

Left ~0820hr w/ Dave and Jan. First checked at CCC 700 and found the big Lachesis muta well under the SE(?) side of the fall tree, head not visible. Walked to ~100m before the end of the SSO to look for an adult Lachesis muta that Julie Denslow saw yesterday - we found her flaps but not the snake. Then walked in by way of the LOC & CES, got the receiver, and went back to search for the ♂ L. muta at CES 530. Soon found it at ~15m N of previous site,



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16 July (continued) coiled up against the overhanging edge of an old fallen tree and very near a stilt palm as well as several Welfia. I touched it lightly and it flinched, so seems OK. Partly cloudy and sunny until  $\approx 1100$  hr, then intermittent rain into the PM. After dinner Dave, Jan, Feyrer Godinas (just arrived from Santa Cruz) and I went out to CCC 700 to check the Lachesis muta, then back and out the SOR to the concrete bridge. Much of the time a light rain was falling. Walking in and out the CCC, we saw at least 5 Potos flavus in canopy trees - our attention was drawn to them by cracking sounds (branches breaking?) and we got good views of them locomoting. Twice they were in pairs. The bush-master was not under the fallen tree, and we spent  $\approx 15$  minutes in the vicinity w/out finding it. Periodically I wondered, especially when bending to peer at some spot and thus unable to watch around me, what it would feel like to be bitten by surprise by that big snake! On the way back on CCC ( $\approx 400$ ?) Feyrer spotted a small adult Dasyus novemcinctus under the boardwalk, frozen at our approach but w/ its tail exposed. He managed to catch it, and we observed an open, maggot infested hole (jagged,  $\leq 20-25$  mm  $\phi$ )



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16 July (continued) at the base of its tail - we surmised only could have been made by a lion or jaguar, and that this armadillo will die from the wound. A complicating factor vis-a-vis surviving a predator encounter!

17 July at  $\approx 0830$  hr checked at 700 CCC again w/out finding the Lachesis muta. Then went to 530 CES and found the  $\sigma^7$  a few m S of yesterday, under the stilt palm that grows around the end of the log. Took polaroids w/ Feyner's camera. Went to San Jose for the weekend.

20 July Back at La Selva by 1030 hr. Learned that Rocío Lopez had found a small adult Lachesis muta at  $\approx 1700$  LOC. She was stepping up onto a log, slipped backward on some withered palm fronds, and bump the snake, which drew back. That was on the 17<sup>th</sup>. Dave and Dan photographed that snake on the 18<sup>th</sup>, and people from the GAPS project saw it again on the 19<sup>th</sup>. Dave and Dan also checked the Lachesis muta at 530 CES, and found it during the day on 17, 18, and 19 and during the night on the 17<sup>th</sup> & 18<sup>th</sup>. Bruce Means and his two sons arrived this afternoon for a brief visit, so I showed them that snake at  $\approx 1600$  hr. During all day sightings the snake was head down and "sleeping", whereas the two nights its head was "up".



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20 July  
(continued)

but snake was in the same position. after dinner (1930 hr) Feyner Godinas led several of us through the Ecological Reserve swamp and around the Camino Circular. We saw only two Dasyus novemcinctus and a few Eleutherodactylus on the loop, but there were a fair number of frogs in the swamp: Hyla logan, H. elaeochroa, a big ♀ Smilisca baudini, several Agalychnis saltator, and Gastrophryne pictiventris calling. at ~ 2200 hr I spied an adult Imantodes inornatus ~ 3 m above the boardwalk in a small tree, got it down, and palped out in order of regency an adult H. elaeochroa, and two adult A. saltator. State of digestion varied from none to only pelvis and hind feet, suggesting that they were eaten at least hours apart - and that such a meal (1 such frog) does not result in a cessation of foraging. Feyner spotted a mammal high in a tree on the N edge of the swamp, and we got a good view of it through binoculars: Caluromys derbianus.

21 July

Left at ~ 0815 hr w/ Dave, Ian, Bruce and his sons. We walked across the Sendero Cantarara and out the loop, where Dave checked briefly at CBS 700 for the adult Lachesis muta we watched there a few days ago. Began raining soon after we started up the Southwest Trail. At ~ 0700, after the 3 Means had passed by, I spotted a yearling



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21 July (continued) Bothrops asper crawling rapidly off the trail. Turned sideways and bit when pinned w/ my boot. Next we turned south on the LOC and checked the Ladnesia muta first spotted by Rocio Lopez on the 17th. Found it coiled and "asleep" at the same site, fully exposed but difficult to see on leaf litter. <sup>(I'd guess this snake at  $\approx 1.6$  m)</sup>. The snake is  $< 1$  m W of a large (.5-1 m  $\phi$ ) old fallen log. Once when I was leaning over the log it flinched once, but otherwise we didn't disturb the snake. Walked in on the LOC and CES, and  $\approx 1015$  hr found the L. muta missing at CES S30. Bruce, Dave and I picked up a receiver and went right out and soon picked up a weak signal, but couldn't get it focused into a sharp beep at first because of interference. As I was slowly walking and searching I stepped inadvertently on a  $< 1$  m "Philodendron" and as the plant bent over saw a "large yellow snake" - adult Ladnesia muta! - drawing back from my right heel. This new snake is  $\geq 2$  m and very fresh looking and yellow; coiled fully exposed between the Philodendron and a young palm and only a short distance in several directions from old fallen logs. Next located the 1.5 m L. muta  $\rightarrow$  w/ the radio, under an abandoned boardwalk plank  $\approx 10$  m from the large new snake; only edge of a coil



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21 July  
(continued)

exposed. I am still concerned that something is wrong w/ that snake. The larger snake maintained a head-up alert posture for the next 30 minutes or so of photography, but when I returned  $\approx 1400$ h w/ 4 people for more photographs it was "asleep" and never moved while we were around. Rain ceased in mid-afternoon, but soayed overcast and cool. By 1900h there was much clear sky and stars. [Forgot to note that on the afternoon of 16 July Mauricio Quesada caught a Leptophis depressirostris in the lab clearing that had its left 20th subcaudal obviously clipped. The snake was an adult and photographed by Dave and Ian, but I didn't get measurements before it was released.] At 2100h checked the two Lochneris munita at 550 CES. The smaller ♂ was still under the discarded piece of boardwalk plank, but alert. The larger snake had moved  $\approx 1$ m NW (?), out from under its plants to face a large "tip up" of an old fallen log. That snake was in an alert posture, w/ head up over the coil and facing the tip-up. Within seconds of us approaching and shining a light on it, the snake oriented its head to us. Some further thoughts on the initial encounter w/ this snake: I marvel at the way perception of certain aspects of the situation were coupled w/ instant action on my part, prior to full cognition of "it's a bushmaster, etc."!



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21 July  
(continued)

When I jumped back I ran into Bruce Means, a big guy, who said I was emanating a cloud of adrenaline that affected him before he fully knew what was happening! Dave says the next thing I did, inexplicably, was to collapse the antenna on the radio I was carrying. The snake was drawing its head back into an S-coil when I saw it, but based on the two previous ones I've seen, <sup>snipe</sup> I don't think this one was about ~~to do so~~ — there was none of the exaggerated S-coil or flattened neck seen prior to striking in the others. However, we were all clearly impressed, and tonight Dave remarked about the danger aspect of all this — he has been pondering the 80% mortality rate for S-C treated (w/ serum) cases.

22 July

Went at 0800 w/ Dave to check the two hachesis muta at CES S50. The smaller ♂ is in place under the boardwalk, "asleep." The big one was gone, and ~15 minutes of searching failed to turn it up. Before and after lunch I photographed a large ♂ Iguana iguana resting on dense "shrub" tops next to the river bridge — probably the same individual I often see sleeping high in a small Cecropia tree nearby. Mostly sunny today, punctuated by a brief shower ~1230h. A visitor saw a long, slender emerald green snake in the Reserve Swamps that sounded like a Leptophis ahaetulla from his



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22 July  
(continued)

Description. He was first attracted to a large brown frog (I presume Smilisca baudini) that was hopping on the emergent aeroids, then saw the snake coming and peering after it. This morning Dave Hardy hiked out to LOC 1700 and found the Lachesis muta there ("Rocio") in place and asleep.

23 July

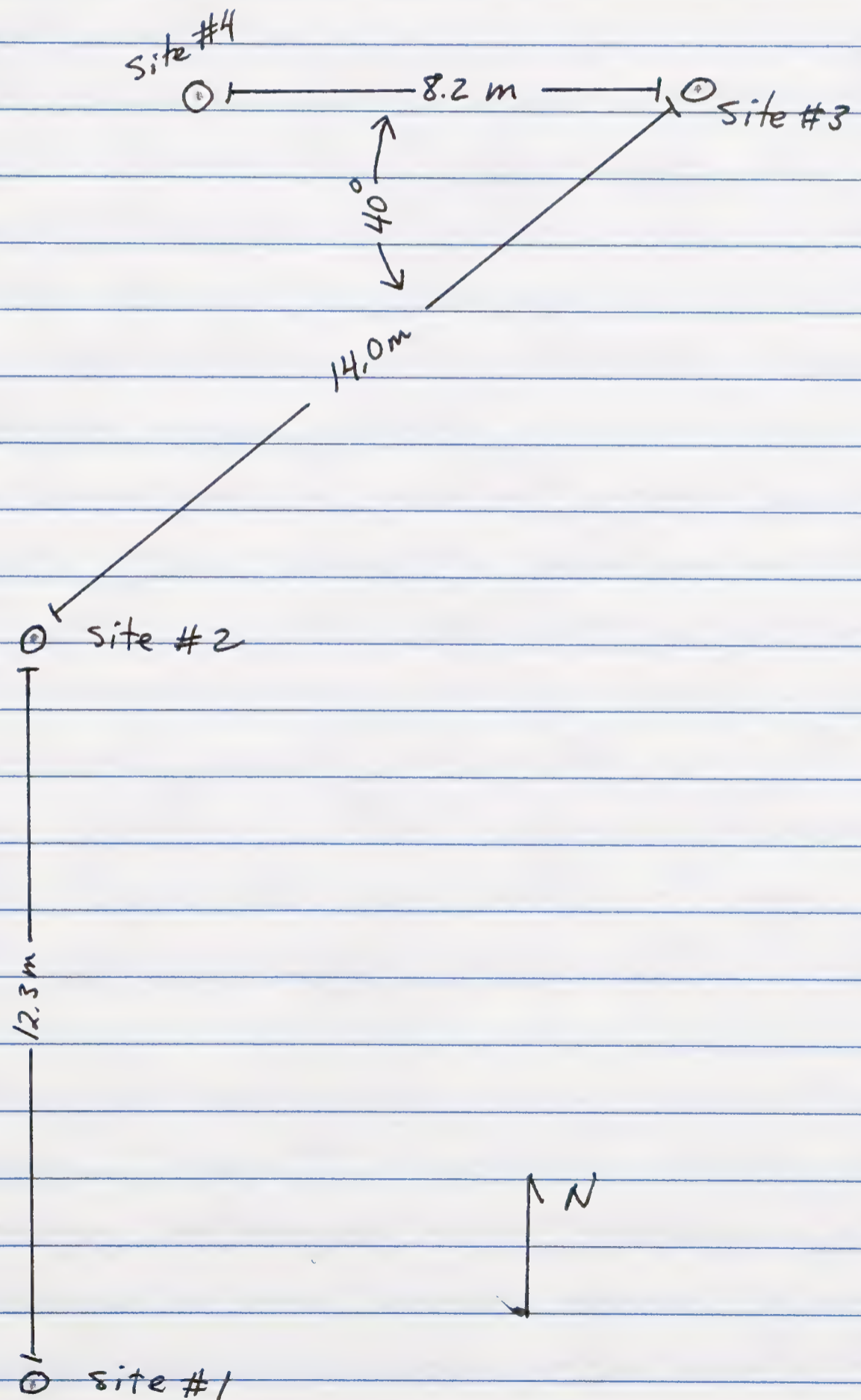
Hard rain at dawn, tapering off (for the moment?) by 0800. Eric Weiner just told me that about a month ago he saw a Ciccaba nigrolineata take what was almost certainly a bat near Cabina #3. He heard a commotion at the forest edge, and saw the owl on a branch from  $\approx 10$  feet. It was eating the object, which from appearance (including apparent wings) was a bat. He saw 4-5 bats fluttering around the owl, and thought they were either catching mosquitoes or harassing the bird (he saw it flinch once or twice when they flew close). Before lunch Dave Hardy caught a Leptophis ahaetulla sliding off the CES at 225m. It is a gravid ♀, 856 + 525 mm, 107 g. Palped from it an Agalychnis saltator, swallowed headfirst, 2.5 g, SV 49 mm. From  $\approx 1415$ -1500 Dave and I mapped out the sites for Lachesis muta at 530-550 CES (map next page). Site #1 is where the ♂ ("Juan Antonio") was first found under ferns and a small tree. Site #2 is where it next moved against an old log and



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23 July  
(continued)

Vicinity of 530m on CES.





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23 July  
(continued)

under a stilt palm. Site #3 is its third resting place, under a piece of discarded boardwalk. Site #4 is where the large adult ("Harito") was, between two plants (a small palm and a "Philodendron") 80 cm apart and 60 cm high. It's hunting site is 1 m W, and  $\approx 0.5$  m from (and E of) a 1.1 m high tip-up of an old log.

24 July

At  $\approx 0830$  hr checked the ♂ Lachesis muta at 550 CES and found it in place and inactive under the plank. Walked back through the station and out SOR to the steps to Rafael's House, where Phil DeVries saw a <1 m Bothrops asper yesterday. The snake had been coiled on leaves on a log, partially hidden under leaves, but was gone this AM. Picked up a  $\approx$  1 week old cat scat on a faint trail leading downstream from the house clearing. When I returned to the lab Orlando presented me with a big ♀ Polydorus gutturosus that he found this morning on a tree beside the river bridge. It has palpable eggs, and gapes and orients when pinched gently.

25 July

Partly cloudy and sunny this morning, rain off and on all afternoon. From  $\approx 9-11$  walked around taking photos for Carmen Rojas, including out to 200 Holdridge and to the Sura Bridge on the CCL. Saw no snakes. At noon Lou Higgins brought me a large and a small cat scat, and Orlando Vargas brought a large one yesterday - clearly there



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25 July  
(continued)

a Felis concolor and/or a Panthera onca in the area recently. Forgot to note that last night  $\approx 2030$ h there was a large, yellowish Tamandua crossing the bridge from south to north. At 1910h, walking back to Cabina #1 from dinner, I found a yearling Bothrops asper crossing the concrete - but my boot two of the three times that I restrained it. Walked out to and around the Arboretum from  $\approx 1930$  - 2130h. At 1956h found a Nothopis rugosus in leaf litter near a termite swarm, in a pile of branches next to the boardwalk (on the Sendero Sur, before the Arboretum). It was immobile w/ only a few cm of tail and hindbody exposed when Nancy Giez saw it, and the only response to handling was periodic thrashing alternating w/ rigidity of parts of the body. Also along the boardwalk heard branches cracking overhead, and got a good view of a Bassaricyon sumichrasti - gray coat, tail not thickly woolly and held well off the limb, and rapid jumping locomotion. On foliage in the Arboretum, saw Agalychnis saltator (2m high, on palm leaf), Eleutherodactylus fitzingeri (1m, on leaf), and E. diastema (calling from under a vine leaf on a tree trunk). At  $\approx 2100$ h I spotted a Leptophis depressirostris asleep  $\approx 4$ m up a sappling, coiled in foliage above the stream. Only response to



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25 July  
(continued)

handling in the dark was thrashing and copious cloacal gland secretion, although later indoors it readily gaped and stuck. After we parted, Jan and David found an adult ♂ Micromys alleni crawling under the boardwalk on Senderos Cartanera, just before it hits the water, at  $\approx 2200$  hr.

26 July

Photographed animals this morning. The Polychus guttulosus could switch brown to green w/in seconds, jumped w/out hesitation to the ground from a height of  $>1$  m, and could move fairly rapidly at times. I never saw it curl the tail round a branch, but there was certainly contact along its length. Interestingly, when the animal switched to green the tail remained reddish-brown. It repeatedly gaped and extended the dewlap when threatened w/ a finger. Phil DeVries told me the plant it was on is Heliconia (Tiliaceae). SV 170, tail 550 mm, 77 g. The claws are exceptionally sharp! The Micromys alleni consistently tried to crawl away rapidly w/ broad curves, but repeatedly exhibited a suite of responses when restrained. If it halted because someone appeared in front, the animal froze w/ head jerked back in a tight, flat S-coil. This appeared to be "tail mimicry" rather than preparatory to striking. If restrained, the body was flattened; the tail was curled slightly and waved, though not especially elevated; and



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26 July  
(continued)

the head ~~swinging~~ back and forth - at least twice I saw it bite and briefly hold on to the plastic box w/ which I restrained it. I did not experience flicker fusion of the bright bands, but I repeatedly found it impossible to distinguish head and tail when the snake was moving rapidly.

at  $\approx 2030$  hr Dave Hardy found an adult ♀ Bothrops asper coiled w/ head hanging out over the outer body loop, facing the boardwalk and completely out on the cleared trail at CES 200. He took photos, then returned for several of us, and when we approached the snake glided into the forest edge. It crawled around a buttressed tree, several times turning to face us w/ an S-coil - and once this was from under a large hanging palm leaf such that a pursuer would have been ambushed. Movements were frequently jerky, and involved sudden, gliding changes of position and direction.

27 July Left after lunch for San José.

28 July Presented seminar (in Spanish) at the Instituto Clodomiro Picado.

29 July Montverde, Provincia de Puntarenas, Costa Rica  
arrived here  $\approx 1600$  hr and got a room in the Pension Quetzal, run by Bob Lewis. Carmen Rojas and I rented a Toyota Land cruiser from the OTS for \$200 for the ride, and we needed the



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29 July (continued) tough suspension for the stretch from the coastal main highway up to here - a very rough road, with some fine views of the Golfo de Nicoya. Saw several Geosaurus similis basking on trees on the way up. Visited Patricia and Michael Fogden briefly before dinner.

30 July after a leisurely wake-up and breakfast, we went to the cloud forest preserve. Along the road I saw several adult Sceloporus malacothicus basking on old dead fallen trees. We walked from x1030-1430h, except for a break for lunch at "the windows" - where there was a spectacular set of views to the Atlantic and Pacific slopes. We couldn't see the coasts because of clouds. Weather alternated overcast, thick fog, and sun, but never really rained on us. Only lizards I saw were two Anolis species. Shaggy moss, ferns, epiphytes of all types, and liverworts everywhere. Several streams and waterfalls, and even one spring. Overall impression was of more dark green stuff than at lower elevations, and of less exposed bark - there is a virtually continuous, soggy, living layer in this forest. After returning, I photographed an adult Bothrops lateralis that Bob Lewis found on his motorcycle seat next to the pension yesterday.

31 July after breakfast we went down the road



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31 July past the Pension Flor-Mar, hoping to see a quetzal.  
(continued) On either side are cleared pastures w/ numerous  
tho widely spaced in places large forest trees.  
Overcast. Tried to locate a singing bellbird  
without success. Finally in quick succession  
Carmen spotted a ♂ Procnias tricarunculata  
calling from the crown of a large tree —  
and we had a fine view out to him  
because of the road's slope — and I located  
a ♀ Pharomachus mocinno in another tree.  
A fine walk, after which we visit the  
Fogdens. Left Monteverde after lunch at the  
Pension Quetzal, and had a great ride  
through pouring rain down the hills. It  
took us six hours to get back to San José  
because twice the main roads were blocked —  
once by a huge fresh landslide and once  
by a fatal car accident.

1 August Spent the day in San José.

2 August All the way back to Berkeley — 14 hours,  
thanks to a miserable layover in Miami.



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16 August

Tilden Regional Park, Contra Costa Co., California

I arrived at the miniature steam train ride  $\approx 1400$  hr, at the request of park naturalist Rachel MacDonald. The people who run the little train had complained of a group of rattlesnakes, so close to the tracks that they feared a snakebite and lawsuit. The men (lead by Eric Thompson) told me that they are not opposed to rattlers, but felt that these were a danger. Three days ago they saw two sparring upright with each other, presumably male-male combat, and earlier today two adults. We rode the train through oak savanna and chaparral, stopping at a rock pile beside the track. It was 3-4 m in diameter,  $< 1$  m high except for one large boulder, and encompassed a small group of shrubs. There was a pair of *Crotalus viridis* copulating in the shade of the shrub when I arrived, and the ♀ rattled furiously when I hooked them into a bucket (next day, not in copulo, the male was more aggressive). We moved all the rocks we could, but found no other snakes. The rocks were more than 1 m from any passenger at any



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- 16 August final, and in my view unlikely to have possibly  
(continued) caused a bite. I later gave the snakes  
to Ayako English, who relocated them to  
East Bay M.U.D. land nearby.
- 27 August Tucson, Pima Co., Arizona  
Arrived here  $\approx 1900$  hr, having left Berkeley  
in my new Toyota truck yesterday at 1500 hr,  
odometer at 510.6 miles. It is 900 miles from  
my apartment to the home of D. L. Hardy,  
where I am staying.
- 28 August Lunch w/ Howard Lawler at the Desert Museum
- 30 August attended "show" for Sylvia Laater, who will  
deliver any day now, at the home of Tim &  
Linda Tarcher (he is a vet, specializes in  
reptiles). Met Brent Martin, studying Heloderma  
w/ Lowe, whom I corresponded w/ >10 years ago.
- 31 August Met Robert Robichaux at the U. of Arizona, my  
host for the sabbatical month here. He showed  
me my office space on Tumamoc Hill, introduced  
me to Paul Martin, etc. After dinner I went  
hunted  $\approx 1900-2100$  hrs on the western bajada  
of the Tucson Mountains and in the Arava Valley.  
a large thunderstorm in the western sky, but  
overhead stars and a  $\approx \frac{1}{2}$  moon. Saw 4  
Crotalus atrox (2 juveniles), 1 C. tigris, 1  
C. scutulatus, and 1 C. cerastes; and  
1 Bufo cognatus.



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- 1 September Road hunted  $\approx$  1900-2100 hrs on the western bajada of the Tucson Mountains and edge of the Avra Valley. Got 4 Crotalus atrox (2 juveniles), a small Leuropropeltis getulus, and a Bufo alvarius.
- 2 September Road hunted for  $\approx$  1 hr w/ David Hard in an area SE of Tucson (near the E. part of Saguaro Natl. Monument) and got only a juvenile Rhinocheilus lecontei ("claus" phase - no red on snake).
- 3 September Cave Creek Canyon, Chiricahua Mtns., Cochise Co., Arizona  
Arrived here  $\approx$  1500 hr - partly cloudy and almost cool. Talked to Barney Tomberlin in Portal and got moved in at the Hardy's house. W/ instructions from Barney I set out before dusk to look for Sistrurus catenatus in an area of "short grass prairie" (desert grassland?)  $\approx$  20 mi. S. of Rodeo on Hwy 80. He says the best stretch is from the Rucker Canyon Rd. turnoff (which is 18.5 mi from the State Line) to a tree on the right side of the road (which is 6.7 mi from the Rucker Canyon turnoff). I traveled that stretch from  $\approx$  1830-2045 hr, four trips, and saw:  
4 Crotalus scutulatus (1 ad. escaped), 1 C. atrox (1 juvenile, not collected), 1 juv and 1 ad Pituophis melanoleucus (1941 & 1949 hr, not collected), and 1 ad Rhinocheilus lecontei. The two adult ♂ C. scutulatus were impressively dark brown and gold snakes, immediately reminiscent



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3 September (continued) of C. viridis. Both were very jumpy snakes: coiling tightly, rattling, and jerking about when approached, and crawling rapidly away when I first tried to hook them into a bucket. One has a well-healed puncture scar at midbody. At 1800 hr I found a Tenapene ornata sitting w/ head out on the edge of (dirt) State Line Road; it urinated copiously, struggled, and snapped when picked up. After returning to Portal made one circuit up Cave Creek Canyon to the SWRS and back to the Hardy's House, but saw only a Mephitis and two fawns (together), no snakes.

4 September Lunch w/ Wade Sherbrooke. Overcast and cool all day in the canyon, with a shower at SWRS at noon. At 1630 hr watched Geococcyx hunting (evidently) on the rock wall behind the Hardy's house, under dense mesquite. The bird hopped rock to rock, pausing every few seconds, motionless except for tilting head as if inspecting the lower branches - and I have seen Crotalus ornatus on this wall. Went road hunting to the "Sistrurus site" w/ Barney Tomberlin. Got 3 Thamnophis marci in a short stretch, and a juvenile Lampropeltis getulus near State Line.

5 September Drove up the canyon in mid-morning (Cave Creek) and then out to the "Sistrurus site" to take pictures. Periodic showers and sun. Found a



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5 September Terrapene ornata in mid-larva w/ head outstretched.

(continued) It "urinated" a foul-smelling liquid.  $\approx$  1600 hr (after a hard shower) drove to SWKS and back w/out seeing anything on the road, and hiked for  $\approx$  1 hr up the N facing slope at the South Fork turnoff. Turned  $\approx$  8-10 dead agaves, saw nothing. After dinner w/ the Hardys, Barney, and his friend Tony, Dave and I went to the "Sistrurus site" and back once - saw an AOR juv Pituophis melanoleucus, AOR neonate Crotalus scutulatus, and a well-dead adult Thamnophis marciarius at the same spot on the road where Barney and I got 3 two nights ago.



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25 November

La Selva Biological Station, Heredia Province, Costa Rica  
arrived in San José the 21st, and here  $\approx$  1100 hrs today.  
a new season for me - in the capital, mostly sunny  
skiffs ("celeste" to the ticos), frequent moderate gusts  
of wind, and rain only infrequently. On the 23rd,  
went to the Teatro Nacional w/ Carmen Rojas and her  
mother to see Soledad Bravo - a Venezuelan  
singer whom I like and had learned of through  
a tape Carmen sent me. President Oscar Arias  
was at the theater, and we passed within a few  
meters of him twice. Sra. Bravo dedicated a  
Cuban song that I like very much to him. On  
the ride out today I was impressed with how  
rapidly "civilization" is growing in the Sarapiquí  
region. This really struck me in La Virgen  
de Sarapiquí, a really tiny hitchhiking post when we  
used it as a jumping off point for the 1983  
expedition into the Zona Protectora - now bustling  
with activity and construction. After lunch talked  
to Orlando Vargas, who told me he saw a  
Polychrus in the same tree where he caught me  
one last July - "perhaps the same one." Then  
Mariello's Charania took me  $\approx$  20 m on the  
CES to a Bothrops asper that Edwin Panizza  
had shown her - a truly gigantic ♀, at  
least in terms of head size. She is  $\approx$  6-8 m  
W of the trail in an old gap, asleep in a



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25 November  
(continued)

moderately tight coil, next to an old small fallen trunk or limb. The head is  $\approx 75-85$  mm wide. I checked her three times w/ various people and took photographs between 1330-1400 hr, and she never so much as flicked a tongue. at 1743 hr, more or less dark, her head was up and over the outer coil, and she turned slightly to me when the light hit her. at ~~1707~~ 1907 hr she was  $\approx 1$  m S of the resting spot, on ground between two limbs of the fork of the fallen log, facing  $\approx$  W and alert. at 2107 found an active Imantodes cerchoa  $\approx 2.3$  m high in vine tangles among banana plants, just S or E of the Sura Bridge (on the old station side, 8.2 g, 53+23 cm, cf. ♀). at 2120 hr another Imantodes cerchoa a few meters from the first, at  $\approx$  same height (16.4 g, 65+27 cm, cf. ♀). Both snakes were ascending vines slowly when I saw them. When touched each crawled upward. Only response to handling was to squirm and to release a strong, sharp odor. at 2137 hr the ♀ Bothrops asper was still alert at the same position, undisturbed by several photos. Between 2107 - 2120 I checked the Cantarana Research Swamp, but couldn't quite get to the boardwalk because of water over the trail. Several kinds of frogs calling. Hard rain here on the 21st I'm told, and some this afternoon. Night clear,



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26 November Left at  $\approx 0810$  w/ Leslie Saul and Norman Gerschwinn (from San Francisco Zoo), went out the Near Zoops to Camino Central 1800, then back across the El Suenpo and in on Holdridge Trail for lunch at  $\approx 1215$  hr. Sunny but not too hot. At 0727 hr I had checked the ♀ Bothrops asper on CES, found her back in the "resting spot" with head facing  $\approx$  NE (as opposed to SE yesterday at rest). Saw various Norops, Ameiva, and a few Eleutherodactylus on the trail - plus of course Dendrobates pumilio. At 0950 hr Norm spotted an adult Mastigodryas melanoleucus motionless on the trail, w/ head up, after I had walked over it (1700 Camino Central, 87g, 73 cm + 24.6 cm, ♀). When seized, she struck repeatedly, spun rapidly about the long axis, and exuded a mild musk. I palped the head and fore-joints of a Sphenomorphus cherrie (swallowed tail-first,  $\approx$  adult size) from her. At 1020 hr we found a Lachesis muta at CC 1800, as reportedly seen yesterday by Jose Miguel Alvarez. The snake looks to be  $\approx 1.4$  m total length, and is coiled under a dry leaf but easily visible, with head facing the trail. It is  $\approx 1.5$  m from the base of an adult (fruit pods) Welfia palm. No sign of awareness of us during photographing; might have a food lump. Saw tracks of at least



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26 November  
(continued)

Two felids in the swamp, at least one large enough to be Panthera onca or Felis concolor. at  $\approx 1200$  hr we heard a creaking in a banana tree beside the sidewalk and saw the longest, darkest, fatest wild Nasua narica I have ever seen - it clambered to the ground, then ambled off leisurely w/ tail up (this was just E. of the ~~Sura~~<sup>Sura</sup> Bridge). At  $\approx 1330$  hr took pictures of the ♀ Bothrops asper - she still in same place. At 1729 hr - still barely light, even in forest, she is out alert in the "hunting site". At 2009 hr she is in the same spot - both nights head has been in same orientation to surroundings and the neck is in a sharp S-coil. At 2150 hr, a Micromys nigrocinctus crawling at moderate speed off the trail at CES O (forest edge). As soon as I gently restrained it w/ my boot she snake thrashed, bit repeatedly, tail displayed, and crawled very rapidly. When I gained the head in my hand it tried to spin, musked, and repeatedly poked w/ the tail spine. Very hard to hold. Tail was often in a loose ring w/ tip overlapping, but never in a tight perfect coil. I was impressed by how hard it was to discern its bodily orientation, and how the tail spine was a "threat" - first reaction was to jerk away from it (♂, ). ♀ Bothrops asper still hunting at  $\approx 2200$ , not disturbed. Today was Thanksgiving, and



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26 November tonight we had a fantastic meal: sheets for a  
(continued) "white table cloth," red wine, turkey, excellent  
dressing, mashed potatoes, brown gravy, and  
apple and pumpkin pies. Everyone ate 'til  
they groaned.

27 November at 0828 hr as I walked to  $\approx 2$  m of the ♀  
Bothrops asper, an Ameiva festiva (small  
adult) spooked and ran over her. The big  
snake jerked her head alert and I quietly  
slipped back to the trail, hoping she wasn't  
disturbed enough to move sites - she is back in  
the "resting place." at 1130 hr she is still there.  
at 1148 hr Roberto Cordero showed me a Leptophis  
depressirostris crawling in grass in front of Cabina  
#1 (mine). He said it had advanced on him, but he  
didn't notice the mouth open. When I seized the  
snake, it spun several times, attempted to crawl  
away fast, and thrashed laterally, but never  
gaped or bit. It defecated while being measured  
(65g, 695+400 mm). at 1627 hr the B. asper was  
still at rest - forest shady, but still easy to see.  
I watched her from 1713-1745 hr but she never  
moved, although it was quite dark by the time  
I ran out of tolerance for the mosquitoes and  
went to dinner. I was surprised to find her still  
"resting" at 1955 hr. at  $\approx 2010$  hr. Jerry Roemer  
(Ohio U., spiders) called me to a ♀ Basiliscus



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27 November plumifrons asleep  $\approx 2$  m upon a Heliconia leaf  
(continued) in front of the main lab (115g, 151+454 mm).  
She struggled, gaped, elevated tongue, and tried  
to bite when seized.

28 November Sick all day, as have been several other people.  
Upset stomach, headache, weak and sore muscles.  
The ♀ Bothrops asper was coiled in the "resting"  
place at 1100 hr and 1550 hr, but not visible at  
either site at 2100 hr. Where is she? Not pleasant  
looking for her at night... Beth Newell saw a  
tricolored Micrus (?) by her cabina after  
dark.

29 November Feel better this morning. At 0750 hr I found the  
♀ Bothrops asper back in her resting site. When  
I moved leaves near her head, she jerked her  
head up and in my direction and froze - no  
tongue flicks, tail movements, etc. I slipped  
away, and returned at 0757 to find her quiet  
again. From  $\approx 1030$ -1300 hr walked the CCL and  
CCC with Carmen Rojas. At  $\approx 1330$  I found the  
B. asper at her "resting" site, then walked to  
500 m on CES and back, to 500 m EOC and  
back, and checked the B. asper again  $\approx 1500$  hr.  
Walked in the Cantarana swamp from 2100-2130 hr  
and saw a few Hyla lognax and one small  
Agalychnis callidryas, and photographed some  
spiders, including an arboreal tarantula.



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29 November (continued) As we headed for the CES, I dropped in the back door of the "new lab" to tell Jerry Korner about the spiders, was in there  $< 2$  minutes, and when I came out ran right into an adult ♀ Bothrops asper <sup>(1395 + 173 mm, 1.1 kg, HWG 1703)</sup> crawling across the door mat by the boot rack! Hooked her onto the smooth porch, then required  $\approx 10$  minutes to get her into a trash can. She changed directions rapidly, often gliding a body length or more in an instant. At least once she crawled more than a meter at me. Several times she advanced up my hook, and once I had to drop it. Never vibrated the tail, never gaped, and never struck. Always seemed very alert, nervous, ready to go at me. At 2150 I failed for the second night in a row to locate the huge ♀ B. asper on CES.

30 November At  $\approx 0710$  I spotted the big Bothrops asper, coiled under the fallen log, less than 1 m from her site 2. She was also there at 1400 hr (head has changed position), 1650 hr, and 1945 hr. Between  $\approx 1100 - 1200$  I photographed two iguanas in a tree by the N. end of the bridge, a big orange ♂ basking and occasionally head-nodding on a large branch, and a smaller (but larger than



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30 November  
(continued)

"yearling" green (♀?) on a limb above him. Second Iguana never moved, except to gape w/ raised bright red tongue (very obvious from a distance) after some time in direct bright sun. After lunch, the smaller was not to be seen and the large one was somehow attached vertically to a slender branch in dense dry foliage. As I crossed the bridge, noticed numerous Rhinoclemmys basking on logs. There is a large tree w/ log jam around its crown remnant, extending from the south bank to about midstream. It is  $\approx 200$  m downstream from the bridge and has been there some time. At 1300 hr today there were 4 Rhinoclemmys, a hemia longicaudus, and an adult Iguana on this logjam — the big lizard on the outermost limb and thus in mid-river. No evidence that it or the other regarded each other as anything — or wasn't it the right habitat for an attack? At  $\approx 1700$  Beth Newell was on the phone and stunned to see a large calf in the clearing near the short trail that goes to the arboretum! Checked the Cantarana Swamp  $\approx 2030$  hr but heard only an occasional frog. Very bright sky, no rain in days.



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1 December

Absolutely cloudless blue sky as I walked over to breakfast. The big orange Iguana was still suspended (precariously?) vertically on a branch w/ heavy foliage. The adult ♀ Bothrops asper was under the log (site 3) at 1045 hr. Between 0700-0800 hr a small (and somewhat skinny looking) <sup>adult</sup> Meiurus allenii was found near the Comedor/Reception building on the north side of the river [this snake dead morning of 2 December 1987, with palpable evidence of broken back, preserved, HW 1700]. Checked Bothrops asper ♀ after breakfast and after dinner and she was under the log (site #3) both times. Going to lunch I noticed that there are two orange iguanas in the tree, the one mentioned earlier identifiable by its slightly regenerated tail tip — the other is really large. From ~1315-1700 hr walked with Rebecca Butterfield and her husband David to the Rio ~~Piye~~ and up it for a few hundred meters. We saw ~~and~~ numerous tracks of small felids, and I collected 6 scats, most or all of a large felid — these varied in age from 1 very fresh to very old. They showed me where twice in one day they saw an adult Caiman crocodylus and her young together. This was at the bridge over a little stream that crosses the Sendero El Atajo. Both times, the ♀ slid in and swam upstream then waited, while the ~30 youngsters scattered among vegetation downstream. at ~1630 hr



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1 December (continued) I saw a Lepidoblepharis xanthostigma crawling in leaves on the trail.

2 December Another sunny day, although fog at dawn. The ♀ Bothrops asper was still at Site 3 after breakfast. She was also there at mid-afternoon and after dark. Alejandro Solorzano arrived this afternoon, and after dark we walked the Sendero Oriental out and back w/out seeing anything. Orlando Vargas brought me an Enallia sclateri he found DOR in La Guaria. At  $\approx 1900$  hr Rebecca Butterfield discovered a freshly dead juvenile B. asper (HWG 1701) on sidewalk by the Villa Esperanza, apparently stepped on unseen by someone. Alejandro and I killed and pickled the big B. asper I caught 29 November, because the Clarks preferred it not be released near the building or elsewhere.

3 December Alejandro and I left before 0800 and walked out the CCC, Camino Central, Sendero Sur, and back on the Holdridge, arriving at the station  $\approx 1130$  hr. At 0828 hr we caught a juvenile Masticodytes melandromus (♀ 300+100 mm, 9g) crawling off the trail into leaves - twisted about long axis, thrashed, and bit repeatedly. At 0900 hr we found the Lachesis muta at CC 1800 in exactly the same place I saw it 26 November. Three people checked this spot on the 27<sup>th</sup> without seeing the snake, but I suspect it was there. It is a young ♀, 1260+123 mm, 950 g. Very calm until after we handled her, then quite brava. She crawled slowly w/ the body extended, head in a tight S-



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3 December  
(continued)

coil, and anterior third greatly inflated. No tail vibration. Struck twice. We skinned her back into the cavity under the leaf. I allowed as how since the only two trail segments I'd never walked at La Selva were Linderio Sur to Holdridge and back and since surely the distance wasn't much greater --- in fact, the Linderio Sur in that part is hill after hill, all very steep! Just before one reaches the corner of the property (which requires one last killer hill) the trail crosses the Quebrada Esquina, a likely look spot for Atelopus if there are any at La Selva. The outermost  $\approx 1.5$  km of Holdridge are also made up of steep trails, then there's 200 m of bad mud and no bridges. I fell into mid-thigh once and narrowly missed being skewered on an old trail stake. We saw a dark animal vault across the Holdridge, almost certainly an Eira barbara. We saw a Lutra longicaudus dive in the Quebrada Esquina where it crosses Holdridge at  $\approx$  EHO 1000. Saw several Felis sp. tracks in the mud on that trail. Started raining  $\approx 1030$  h and rained off and on the rest of the day, never hard. The big ♀ B. asper was still in the same spot after dark. We saw almost no frog activity in the Cantarana Swamp, but caught a neonate Imantodes cerchou resting coiled on a leaf  $\approx 30$  cm above forest floor at  $\approx$  CES 150 (1.7 g, 236 + 96 mm).



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3 December (continued) Only response to handling was to squirm, crawl rapidly, and eject a drop of liquid (clear) and a tiny crumb of uric acid from the vent. I could detect no odor. at  $\approx 2300$  hr Deborah Clark caught a juvenile Clelia clelia ( $482 \pm 10$  mm, 26.5g) in front of their house on the sidewalk. Its only response to handling was to crawl and squirm, and eject and odorless liquid from the cloaca.

4 December Rained off and on all day. at  $\approx 0800$  hr Alejandro and I caught the big ♀ Bothrops asper without much difficulty - she seemed not especially alert and simply dashed here and there in the dense groundcover around the logs, never striking. Pinned her twice, once to put in the trash can and once to measure her ( $2.15$  Kg,  $1610 \pm 220$  mm - see below). After the second time there was blood in her mouth, which we assumed was some trivial cut from a fang. When released she crawled under the log and seemed OK. at  $\approx 1100$  I located her stretched out nearby, with the head turned awkwardly and a fly on it, but she turned toward me when I touched the tail. at  $\approx 1400$  hr I found her in the same place, dead, slightly stiff. Re-measured her as  $1721 \pm 225$  mm, substantially larger than we thought. Pickled her. Skin appeared "old," so we wonder if we aggravated some existing condition or simply fatally injured her? at night I noticed a Hyla elaeochroa eating bugs on the outside of the bathroom window - attracted



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4 December (continued) there by the light inside. Not much frog activity in the swamp (Cartasana) despite the rain.

5 December at ~0800 Beth Newell and Roberto Cordero saw a Epilotes pullatus in grass beside the walk at Villa Esperanza, which crawled up a nearby sapling at forest edge and froze on a horizontal limb. As soon as I seized it the snake vibrated the tail and struck and thrashed powerfully (680g, 1540 + 510 + tip missing). When released ~3 m from forest edge it crawling rapidly into the woods. Did not fully inflate throat during handling, but body was always inflated when I held her (?). Saw only Hyla ebraccata and another small hylid in the Cartasana Swamp, and a large crab in the water.

6 December lots of rain, all day. Only walk was with Carmen Rojas out the Sendero Occidental and back - saw nothing.

7 December at 0627 hr, on the way to breakfast, there was an Eira barbara behind cabina #1, perhaps after fruit on the ground. It moved quickly into the forest as we approached. Walked out and through the arboretum from ~0730 - 0830 hrs. At 0757 hr a Masticodytes melanotomus was crawling rapidly in leaf litter beside the trail (♂ 285 + 83 mm, 6g). It thrashed and bit repeatedly (hangson), and I palped a lizard egg from it. When released it assumed an elevated S-crit and struck rather than crawl away. Today is sunny, clear, warm. Next I photographed



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7 December (continued) a Bradypus in a small Cecropia near the south end of the bridge, over the river (occurs to me that this might be an especially safe place for it to sleep). Saw three Iguana iguana in vegetation & trees near north end of bridge — a large orange-spined male alone, and the male w/ partly regenerated tail along with a (the?) green smaller (♀?) animal about 2 m away. The large submandibular scales of the males are always easily visible, and they often have the snout elevated. From  $\approx 1430-1600$  I walked the Senderos Oriental and Occidental, but saw nothing.

8 December Sunny all day, no rain. at 1007h Jorge Vega (brother of Gerardo) showed me a spider eating an anole,  $\approx 2$  m up the trunk of a spiny palm in front of the main lab. The spider was an adult Cupiennius getazi ♀ (fide J. Rovner, Ohio University). The lizard was an adult ♀ Norops limifrons (41+88mm, 1.15g, non-gravid). Lizard was still struggling weakly when I found it, but the spider seemed to be easily holding on. Jerry told me he recently saw a Nephila clavipes eating a lizard here too, and a Cupiennius eating a frog. At 1930h Deborah Clark found an adult ♂ Micromys nigrocinctus (the one I saw earlier? I don't think so...) on the sidewalk in front of Cabina # 3. When touched it crawled rapidly into the grass, and when pinned it thrashed the body, thrashed the tail more rapidly —



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8 December (continued) coiling and uncoiling but never holding a "ring."  
When handled and palpated it twisted violently, withered the posterior and repeatedly "pricked" me with the tail spine, and expelled a strong smell. Crawled rapidly away when released.

9 December The guard reported a Bothrops asper adult the last few nights along the sidewalk to the River Station, so I spent ~30 minutes after breakfast looking for it without success. Saw only a juvenile Norops capito. Overcast. Going to San José today to celebrate Carmen's birthday.

10 December, Instituto Clodomiro Picado, Costa Rica

Spent the day here but didn't take any photographs because the shutter on my camera locked and I stupidly thought it was broken - later proved to be only a bad connection w/ the battery! Saw a Dipsos articulata said to probably be from Puerto Viejo de Sarapiquí. Very slow to react, but with some poking it assumed a rigid, exaggerated "ripe" pose, with quadrates expanded (NB: does this occur in Sibon? Seen occasionally in Ninia - nice example for phylogenetic analysis). An Erythrolamprus mimus from an unknown locality (with a bright orange nape band) body flattened, lid head, thrashed elevated coiled tail. Another behaved similarly, w/ the addition that it's hemipenes were both partially held everted during the tail display. Also, an enormous



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10 December (continued) Xenodon rabdocephalus that was very aggressive - striking w/ wide open mouth out of its cage.

11 December La Selva Biological Station, Prov. Heredia, Costa Rica  
Returned today by O.T.S. vehicle. This morning Orlando Vargas encountered an adult Lachesis munita coiled on the north side of the trail at  $\approx 870\text{m}$  on the Sendero Suampo. At  $\approx 1400$  I walked out to it with Feynner Godinas, Deborah Létourneaux, and two friends of theirs, Laura Harnish and Judy Appel. We found the snake in a loose coil at the edge of the trail (not actually on it), with head resting on an outer loop and possibly alert. I estimate its length as 1.7 m. - adult but not large. Afterwards we returned by way of the Senderos Suampo and Goldridge, in moderate rain all the way. Stopped for a swim at the waterfall, and I started to climb out the first time the rope broke and I fell butt first on Judy's head - a first for us both! As we were clambering about in surprise, Feynner swam up with a large adult  $\sigma$  Norops oxylophus caught on wet rock face beside the falls, so the five of us had an impromptu lesson on anoles while chattering - teeth and dog paddling. Finally pulled out with some difficulty.

12 December at  $\approx 0645$  I left with Renaldo Aguilar and Vivien Solis to see the Lachesis munita at S. Suampo 870, but it was gone. I searched surroundings w/out seeing it. Gave an hour lecture in Spanish to the workshop on environmental education here.



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13 December

J. Porner brought me a neonate Nothopsis rugosus that he found this morning ~~in~~ exposed on the ground in leaves, near the sidewalk to the River Station, just into the woods from the new laboratory (105 + 50 mm, 0.8g, umbilical scar present). The ground color is a brighter light yellowish orange than I have seen in other specimens. When he seized the snake it went semirigid, such that he thought it dead. When I restrained it, the snake vibrated the whole tail slowly, alternated squirming w/ rigidity, and emitted a strong odor after several seconds of handling. At 2105 hr his student, Renee, <sup>(see 17 December 1987)</sup> called me to an Oxybopus petola crawling under the stairs of Cabina #2 (12g, 375 + 82 mm). When handled later for photographing, this snake thrashed in place and waved the thrashing (not looped) tail, stopped abruptly at times, and emitted a foul odor - overall effect moderately like a coral snake.

14 December

At  $\approx$  1400 hr David Clark brought me a neonate Corallus annulatus, found by a clearing man on a rofter of Cabina #2 (465 + 92 mm, 18.5g, umbilical scar present). When handled it only crawled normally, occasionally pulling the head back into a striking coil, and twice halfheartedly gaped and/or struck at my finger. During the day someone left an Imantodes cerbera in a bag on my desk (10.5g, 603 + 261) - only reaction to handling was frantic crawling and emission of a very foul odor. From  $\approx$  1930 - 2100 hr walked the Sendero



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14 December (continued) Occidental w/ Feynman, Deborah, Laura, and Judy. Saw two Potos flavus high in trees, lots of tiny Hyler and lots of Eleutherodactylus diastema calling (today was sunny and bright very clear - lots of stars, but we had a hard rain  $\approx$  0530 hr.). At 2015 hr an adult Imantodes inornatus, frozen as it crawled up an aroid stem from a fallen log,  $\approx$  1.5 m above the ground. Toz was in dense second growth beside trail, amidst bromeliads, vines, etc. (707 + 115 + ? (tip missing) mm, 36 g). Only reactions to handling were crawling, thrashing, and emission of a mild odor. At  $\approx$  2100 hr I spotted a ♀ Norops capito (82 + 135 mm, 12.5 g, ova palpable but small). She was on a leaf  $\approx$  20 cm above the ground in forest, and struggled, gaped w/ tongue elevated, and bit when held.

15 December As I crossed the bridge from breakfast at  $\approx$  0645 hr I noted an adult ♂ Bradypus variegatus in a Cecropia tree just W. of the bridge on the S. bank of the Rio Puerto Viejo - I saw a sloth (same?) there yesterday afternoon, and have seen a male of similar size there at least 6 times (days) since arriving here in November. When I returned at  $\approx$  0920 hr I saw the sloth move out a limb and eat fresh-looking fruit. At  $\approx$  0930 hr I spotted a Lutra longicaudus in the middle of the main limb of the large fallen tree that extends N-ward into the river  $\approx$  200 m downstream. At times the otter lay on its side, evidently to groom, as I saw the head placed against the rump, shoulder



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15 December  
(continued)

and inguinal region. The latter appeared more pinkish and slightly swollen, causing me to wonder if the animal is a ♀. It then made several complete circles on the limb, pressing its chin and chest lower than the hindquarters - scratching, marking, both, or what? From time to time it peered upstream w/ head and foreparts raised, at which time the distinctly lighter throat (and chest?) was very evident (social signal?). It eventually stretched out against another horizontal limb, facing into the sun and apparently basking. Before settling down it once abruptly moved to a limb that forked upward basal to the main limb, turned and in some manner lifting the tail - defecating, urinating, marking, or what? The other remained visible for  $\approx 10$  minutes, then abruptly disappeared into the water. ~~Then~~ Carmen and I started to walk S. off the bridge and saw an adult ♂ Bradypus variegatus climbing the bare trunk of the Cecropia at  $\approx 2\times$  normal (i.e., compared to previous observations) speed. At first I thought the first sloth was ascending again after an unseen tip down, but now saw it at the top of the tree, suspended under a leaf. The second sloth ascended the tree continuously, and quickly reached the first animal without deviating on any side branches. <sup>( $\approx 5$  were possible)</sup> as it arrived it reached for the other w/



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15 December  
(continued)

a forelimb and they began grasping - soon (w/in seconds) a writhing mass of sloth arms and legs, all accompanied almost from the instant of first contact by series of sharp, short, high-pitched cries, coming from one or both of the sloths. Within 15 seconds, the first was hanging by hindlimbs and the second was pulling or falling free from the limb. They were suspended as such for a few seconds before the second broke free with the first still swinging at it w/ forepaws. The second descended the tree continuously at  $\approx 3\times$  "normal" speed and disappeared in vegetation from which the Cecropia emerges over the river. When the second broke free, the first hesitated a few seconds, then descended the limb rapidly (this as the second was still in view) to the crotch, then veered out a limb over the river and began to feed. When I crossed the bridge for lunch there were no sloths in the tree. I had the strong impression the "intruder" saw the "resident" before I first spotted it going up the trunk. The speed of movement was especially impressive, ~~and~~ no more than 2 minutes were passed between when I first saw the intruder and its exit; ~~and~~ the encounter ended at 09:41 hr.

16 December At 0830 hr I located a  $\approx 1.6$  m Bothrops asper



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16 December (continued) at SOR 830m,  $\approx 80m$  past the big "bat tree" Dipteryx, that Feynner Godinas encountered last night. He saw her alert and coiled out on the trail, whereas now she is in a tight coil under surface green vegetation, just off the cleared trail and a few cm from a small tree. There is a large treefall  $\approx 3m$  away. The head is down and in (see photos), more like is typical of Lachesis. I returned in a rain at  $\approx 2030hr$  w/ Carol Farnetti of Partridge Films, and found the snake out "hunting", about 25 cm from the base of the small tree and in the cleared trail, facing the boardwalk. Alert - turned and tongue-flicked when in light. at 2048hr, as we returned over the same route, I found a  $\approx 1.3m$  Bothrops asper at SOR 220m. The snake was in a moderately tight coil, w/ head and neck in S-coil pointed at the boardwalk. Caught a gravid ♀ Eleutherodactylus fitzingeri near the lab in wet grass after dark (SV 45 mm, 6.5g).

17 December Walked out SOR and around the CCC-CCN loop w/ Carol. Missed a small adult Masticophis melanomus as it dashed off the trail at  $\approx CCL 700$ , 6919hr. I slammed my left forearm onto a spiny palm trying to catch it. Couldn't find either Bothrops asper from last night on the SOR. at 1514hr I found a Leptophis ahaetulla lying motionless on the cement floor under my cabina (♀ 820+515mm, 66.5g)



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17 December The snake thrashed, spun, struck, bit, gaped (continued) w/ wide open mouth, and emitted a foul odor when seized. When later released on a sapling it glided deliberately up and out of sight. Palped from it the remains of a hyliid, cf. Smiliaca, w/ vent to heel of 40 mm. It had faint crossbars on the thighs, which had their posterior surfaces unicolor and separated from the dorsum of the thigh by a sharp border that becomes a white line across and over the anus. Frog had been swallowed head-first. Examined feces of Axychopus petola collected 13 December, and found only many small reptile scales that I took to be Ameiva festiva. At 1600 hr David Clark caught a Rhadinaea decorata ♂ on the sidewalk by my cabina (253 + 50 + P mm, 7g). When handled it squirmed, exposing repeatedly the red ventral ~~and~~ colors, and emitted a very foul odor. I palped 3 pieces of tail of a Sphenomorphus cherriei, which fit each other perfectly. At 1950 hr in a light rain I found a neonate Leptoplis nebulosus ~1 m above ground on a broad leaf, next to the sidewalk near my cabina. It squirmed and smelled slightly, but no biting or gaping; when I palped 2 tiny transverse, unidentifiable frog heads (cf. hyliids?), swallowed tail-first (snake 4.6g, 274 + 161 mm, distinct umbilical scar). At 2026 hr, near the turnoff



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17 December  
(continued)

to "Rafael's House" on the SOR, spotted an adult Leptodactylus pentadactylus. When we stepped closer, I could see something bloody protruding  $\approx 30$  cm from its ~~mouth~~ - and for a moment I thought about the possibility I had somehow stepped on it and this was the tongue, yet how could it be so long? At that point the frog began regurgitating, and as I seized the prey it finished vomiting and hopped out of sight. The dead prey was a ♀ Imantodes cenchoa (605+291 mm, 19 g, HWG 1705), with at least one spinal fracture and a large piece of skin ripped at midbody and intestine protruding ventrally. The snake seemed dead, but most of its tail was coiled tightly around a stick  $\approx 20 \times 2$  cm - probably the only reason the frog hadn't already swallowed it when we arrived. At 2039h I met an adult ♀ Bothrops asper crawling down the muddy trail by the big Dipteryx tree at SOR 750 m. She froze briefly in the light, crawled another few meters down slope, then turned W. into the forest. All crawling was rectilinear w/ the body almost straight, and the snout was frequently tipped downward as she tongue-flicked the litter. I held my snakestick over and parallel to the snake, and thereby estimated total length at 1.7 - 1.8 m. Because of apparently greater girth, I don't



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17 December (continued) think this is the same snake I saw yesterday only  $\approx 80$  m away, but she is very similar in color pattern and hue (very yellow).

18 December On the way back from breakfast,  $\approx 0730$  hr, saw 3 green ibises (Mezembrinibis cayennensis) perched on the downstream logjam in the Rio Puerto Viejo. I was impressed by their dark iridescent feathers, blue-green legs (almost lacquer-like from a distance), and long light curved bill. At one point two gathered and engaged in two bouts of bill "whacking". Eventually, one at a time but w/ in less than a minute of each other, they flew low across the water to the north bank and disappeared from our view. I could see clearly a fresh pile of otter shit on the big emergent log right under the bridge - so bright reddish and irregular in texture as to look like a flower. Clearly like others I've inspected, filled w/ crustaceans. As we watched, John Blake told me he once saw an Iguana swim leisurely across the river here, sculling with its tail. Carol Farnetti and I walked the CES & CEN then out to the end of the SOC but saw nothing but a few Norops. Rained most of the morning, and almost seemed cool. By noon the river was so high that the log under the



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18 December bridge was invisible and the log jam almost  
(continued) submerged. David Clark showed me a  
big ♀ Brachypus variegatus right next to the  
bridge, and many photos were taken. After  
lunch there was intermittent sun and I could  
see a large ♂ Iguana iguana on each bank  
of the river and opposite sides of the bridge -  
I'd guess 75-100m apart. They were each very  
easily visible to me, and I wonder how far  
apart they can see each other? Rain again in the  
afternoon. Jose Miguel <sup>Valverde</sup> ~~Alvarez~~ brought me a Bothrops nasutus  
that he found on the CCC, and which was "muy bravo"  
(28.5g). Walked to the end of SOR and back w/ Carol  
Farnetti and Carmen Roldan - saw 1 Agalychnis saltator  
and several Hyla elaeochroa in the Cartavana Swamp  
and at least 4 adult Leptodactylus pentadactylus along  
the SOR. At 2032 hr we found a small Smartodes  
cenchroa  $\approx 0.8$ m above ground beside the SOR, near the  
turn-off to "Rafael's House" (3.9g, 424 + 190mm). When  
first discovered, the snake was extended upward at  
a steep angle, such that  $\approx 30$ cm was in space. After  
gaining the next stem, it hung out over a flat green  
leaf and tongue-flicked its surface without any  
actual contact or movement of the leaf.

19 December Rained off and on all last night and this morning -  
at times very hard. After breakfast there was  
sporadic sun as I crossed the bridge. There



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19 December was a large ♀ Bradyptes griseus in the Cecropia (continued) tree on the south bank - and watching it I am now sure the ♂ I watched earlier was eating the new, red leaves - not fruit. The river is still up, but I saw 2 sun grebes (Heliconia fulica) downstream near the river's edge, in the muddy water. There were at least 4 adult iguanas on the NW bank - "short tail" in a tree well in from the shore (as he often is) and three in high foliage along the river. Two of those were big, orange spined moles and one was a little smaller and all dark gray-green. I saw at least 1 orange-spined ♂ on the SW bank at equivalent height and 1 orange-spined ♂ on the SE bank out on an open tree limb at  $\approx$  same height. All had their dewlaps out and I think they were all in mutual view (took photos). at least one on the NW bank periodically head-nodded. I was struck by how visible they are in profile at a distance - surely they are thermoregulating, but I also had the strong impression they were advertising. Rained all afternoon and into the evening. at  $\approx$  1940 hr I spotted a ♂ Draconodes cenchoa (676 + 330 mm, 14.5 g) crawling slowly through a vine tangle in front of cabina #1, about 2 m above the ground - stomach empty, so presumably hunting. Walked to CES 500 and back but saw only Hyla elaeochroa. Walked through the Cantarana Swamp, where there is a huge chorus of Hyla



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19 December (continued) Elaeochroa, a few Agalychnis saltator, and a single Smilisca baudini calling. I found an Imantodes inornatus (610+253 mm 19g)  $\approx 3$  m over the east end of the boardwalk, crawling down a <sup>2128 hr</sup> very slender, dead-end limb, with neck <sup>to body -  $\approx \frac{1}{2}$  TL</sup> extended straight along limb. Palped from it a freshly ingested Hyla elaeochroa, swallowed tail first, 1.8g (pickled). The snake responded to handling by squirming and emitting a foul odor. At 2140 hr, in a low bushy tree near the west end and just north of the boardwalk (same tree from which last summer I retrieved an I. inornatus containing three frogs), I found a large ♀ I. inornatus (43g, 700+285 mm). It was in a loose coil, w/ head and neck possibly extending back up into the tree, at the end of a leafy branch at  $\approx 2$  m above the water. From it I palped a gravid ♂ A. saltator that had been swallowed head-first, 60 mm head to anus, > 5g. Response to handling was squirming, emitting a foul odor (this accompanies ejection of a viscous liquid and a small quantity of uric acid), and pulling the head into an S-coil w/ quadrates spread - very reminiscent of Dipsos sp. No striking - only response to additional poking was crawling. We found a juvenile Hyla rufitela on a broad leaved plant  $\approx 1$  m above ground, near the sidewalk into the swamp.



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20 December Still raining off and on this morning! At 0656 hr a workman showed me a juvenile ♀ Bothrops asper in wet grass beside the sidewalk just north of the bridge, but it crawled rapidly into the vegetation. Rained all day and night. There was a Christmas party, complete with "discomovil" - a disc jockey with sound system - and attended by many local ticos and their families. At  $\approx$  2200 I went to the Cantarana Swamp to release an Anartodes inornatus and found four more! Rain was so hard I had to take two back to lab to process them (couldn't reach the others, etc., because they were in the off-limits area). There was a huge chorus of Hyla elaeochroa, plus a few each Agalychnis saltator and H. microcephala, a Smilisca baudini, and several very loud Gastrophryne pictiventris - the latter calling from in water. At 2205 hr. an A. inornatus  $\approx$  1 m above water in a tangle of leafy vegetation (640 + 241 mm, 25.7 g); has a healed ventral scar at  $\approx$  ventral scale #50. It squirms and emits a foul odor - in fact, as with all of this species I've handled, when first touched the cloaca is prolapsed and gaped while a little fluid and uric acid is expelled. Palped 4 Hyla elaeochroa, 3 recently swallowed headfirst w/ weights of 1.8, 1.8, and 2.0 g; and one swallowed tail-first of which only the head remains. At 2240 hr I saw an adult ( $\approx$  maximum size) A. inornatus.



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20 December  
(continued)

crawling very slowly in some broad leaved plants that arise from a large stump, such that the snake was  $\approx 1.6$  m above water. This snake I watched until  $\approx 2253$  hr, and it crawled continuously over and between leaves. It moved over a leaf w/ head and neck on the leaf, seemingly sweeping and not avoiding contact as in *D. cendroa* - my impression was that it was behaving <sup>like</sup> *Leptodeira septentrionalis*, and using the extensible neck to bridge gaps but not to search without touching leaves. The tongue was protruded frequently. At 2055 hr. an *D. inornatus*  $\approx 0.8$  m above water in dense leafy tangle (small leaves), crawling slowly (741 + 283 mm, 37.3 g). Reacted to handling by squirming, cloacal prolapse, and emission of a foul (nauseating) odor. Palped *Hyla elaeochroa*, freshly swallowed head first with a number of fresh green, jelly-less eggs (2.1, 2.2 g). (these were cf. *A. saltator*) At 2315 hr I could no longer see the second snake, but found a fourth,  $\approx \frac{1}{2}$  adult size,  $\approx 30$  cm over water among stems of the large aquatic-emergent plants. Squirmed and emitted foul odor when handled, stomach empty. Raining very hard now, and seemingly the harder it falls the harder the frogs sing!

21 December

cloudy with hints of sky as I walked to breakfast - and two ♂ *Iguanas iguana* already visible although it's overcast. By 0800 hr there is bright sun.



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21 December at 0955 hr I was called to an adult Leptotyphlops (continued) depressirostris  $\approx 2$  m above ground on a limb at the clearing edge, in woods. It was immobile, started to crawl when I reached for it, and thrashed, spun, and gaped once briefly when seized. Bit my leg as I palped a frog from it. Snake 698+407 mm, 58g. The Leptodactylus pentadactylus was only a few cm distal to the snake's head and made feeble movements when touched (2.25g, HWG 1722); swallowed ~~head-first~~ <sup>tail-first</sup>. Left for San José at 1300 hr.

28 December Returned to La Selva  $\approx 1100$  hr, after a week in San José w/ Carmen Rojas and her family for Christmas. In my absence the little Bothrops nasutus bit and killed the Corallus annulatus and Oxyrhopus petola, among seven snakes with which it was caged. After dark on the 23rd, Jerry Rovner encountered an Oxyrhopus petola on the sidewalk near the main lab that rapidly climbed  $\approx 3$  m up a small tree in its attempt to escape (HWG 1723). at 0945 hr today David Clark caught a juvenile Xenodon rabdocephalus in front of my cabina (#1) that gave him an "impressive display" and regurgitated a small Leptodactylus pentadactylus (HWG 1724, 1725). I palped a second, partially digested L. pentadactylus from the snake  $\approx 1400$  hr, swallow TF, and allowed it to be reingested. This little Xenodon responded to the approach of a hand by rapid lateral undulation w/ body and head not expanded,



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28 December  
(continued)

during which it looked very much like a Bothrops asper neonate. When cornered but not touched, it coiled w/ neck in S and tail coiled and slightly elevated, and struck repeatedly and rapidly in succession - again reminiscent of B. asper, but when in a coil, between strikes, the quadrates were spread laterally as were the anterior-most ribs, creating an impression of a much larger head. Jerry Kerner and Renee (?), his student, saw a gigantic Spilotes pullatus on the Goldridge Trail, adjacent to the parcels. It froze at their approach, vibrated the tail and faced them w/ inflated throat, then moved off into the forest. Renee thought it was 12-14 feet long, Jerry 10 feet - when I told them the one we photographed a few weeks ago was 6'9", they were surprised it was that long and felt that based on much greater girth their big one was at least 10 feet and maybe longer. Oh how I'd like to have seen that snake! After dinner I gave a talk on predator ecology to a group of Wisconsin U. students. Rained most of the night.

29 December

Rain and lab work all day. From  $\approx 2000$ -2050 hr walked out the CES with Carmen. At CES 85, 2010 hr, a very small Bothrops nasutus (161 + 17 mm, 4.3g) coiled lightly on a palm leaf  $\approx 65$  cm above ground and next to the trail. Snake would have had to climb  $\approx 45$  cm of stem from ground; palm next to a small old



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29 December (continued) fallen limb (photos). I touched the outer coil lightly w/ a stick, intending to gently slide it into a bag, whereupon it catapulted off into the leaf litter - seemingly w/ a single flex of the body. My image was of a broad S or J-shaped projectile. Hit the litter crawling and went under the limb, from which Carmen poked it with snake stick. More frantic crawling, perhaps sidewinding at times. At 0830 hr next morning I palped two pieces of tail, swallowed head-first, of Sphenomorphus cherriei. While handled for measurements and palping, it struggled and tried to reach me with fangs.

30 December Rain during the night, until dawn, sometimes hard. From 0930-1115 hr walked to Holdridge 900 and back, then out <sup>to</sup> the arboretum. Saw only a Microstus mirandollei, which flew across the path and perched on a low branch. At noon a great blue heron downstream. From  $\approx$  1530-1700 hr walked to Holdridge 750 m and back w/out seeing anything - rained hard, with shining in brightly from the west at the same time!

31 December From 0900-1100 hr walked out SOR, out CCC to  $\approx$  200 m past the Saltito Bridge (?), back to SOR and out Holdridge 900 m and back - saw only Cebus. Michael Fogden walked to the south boundary and back without seeing a snake! He brought me a fresh small Felis scat from Sendero Suayso  $\approx$  500 m.



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31 December (continued) at 1300 hr we could see a dead adult ♂ Iguana in the river, bloated and hung on a snag, some flies on its emergent right side, legs dangling in the water. I couldn't see a tail tip so wonder if it is "short tail," whom I haven't seen for days. Downstream on the N. bank I can see at least four adult ♂ Iguana, all very visible and out over the river. The farthest is at the W bend,  $\geq 400$  m away, and I first glimpsed it without binoculars (or glasses!). I noted 4 adult ♀♀ in a tree with one, at least one with another. Carmen and I went back at 1500 hr. The especially large orange male, upstream on the south bank, is visible out over the river and displaying periodically. In the next tree toward the bridge we counted 7 adult Iguana, 1 young adult ♂ and 6 ♀♀! Further upstream from the orange ♂, there was a small adult ♀ at the top of a dead snag,  $\approx 10$  m up and at an angle out over the river. Thus today I saw at least 18 different adult iguanas along maybe 500 m total shoreline, and I surely missed some! And, there are many more in from the river, as we have seen them in numbers just west of the conector. Also, saw a little blue heron on the downstream logjam at noon. Rained very hard for a half



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31 December hour at noon, lights off and on in the afternoon. As we started across the bridge at dusk for dinner, a Caluromys derbianus was fairly running up a high cable on the bridge and then nimbly climbed off to an adjacent tree, where it descended out of sight in foliage on the South Bank of the Rio Puerto Viejo. I picked up the eye shine of an adult Caiman crocodylus near the north bank and slightly downstream, then saw it approach, contact, and move (bite) the dead Iguana carcass. As we started up the bridge from dinner, saw a (the same?) C. derbianus rapidly scale a tree and run out a limb tip, turn back, and disappear into the foliage. I am repeatedly impressed that this opossum is more agile in trees than Didelphis. At 2000 hr we met for the Christmas Bird Count, and totaled 325 species! [Next morning the Iguana carcass was gone, but I don't know if it was eaten or washed downstream. On 2 January 1988 I saw "short tail" in his old haunt, and now wonder if the dead lizard had washed down from upstream?]



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1985-1989

Journal

1988

Costa Rica

Calif: Mendocino Co.

Arizona: Cochise Co.



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1 January La Selva Biological Station, Prov. Heredia, Costa Rica  
We had planned to leave today and spend the next few days in Monteverde, but problems with car rentals caused us to decide this morning to remain here until the 6<sup>th</sup>, for the sake of fewer hassles and more total time spent enjoying the forest — this after spending most of the morning packing! at lunch a visiting bird watcher told me that yesterday he saw an adult Iguana iguana on the ground w/ a brown snake snake in its mouth — he felt unsure as to whether was trying to eat the snake or just kill it. In the afternoon I walked to SHO 900m and back, with a sidetrip to CCL 700m, without seeing any snakes. a visitor told me he saw a coral snake that was unequivocally Mimius nigrocinctus struggling with an unidentified brown snake in the morning.

2 January Rained hard most of the night and intermittently in the morning. I walked to SHO 900m and back, with a side trip to CCL 700m. At 0959 hr. at SHO 250m I grabbed a skinny-feeling Chironius grandisquamis as it moved rapidly off the trail into "plot" vegetation (♀, 1260 + 735 mm, 468g). The snake thrashed, inflated the anterior  $\approx \frac{1}{2}$  of the body, and repeatedly struck when seized. While being palped and measured,



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2 January (continued) the cloaca was prolapsed and it expelled a thick yellow liquid. I didn't detect any odor. Walked to CES 700 m, and spent  $\approx 10$  minutes at  $\approx$  CES 550 m searching the area where I saw two Lachesis muta in July 1987. Lastly, ~~we~~ went to  $\approx 250$  m SOC and back by  $\approx 1130$  hr. at 1855 hr. Collin Nichols-Orians led me to a large heptodeira annulata crawling slowly up cobbles under a wheelbarrow ramp to the north end of the Rio Puerto Viejo bridge ( $\varnothing$  635 + 158 mm, 109 g). When seized, she crawled rapidly and released a very foul smelling liquid from the cloaca. Carmen and I walked to CES 700 m from 1930-1830 hr but saw nothing - a dry, bright moonlit night.

3 January From  $\approx 0830-1100$  hr Carmen and I walked out the CES, LOC, Sendero El Atajo, and down to the Rio Sarapiquí. I found an old lutia longicauda scat on the rock I've often seen there on before, and the end of the Sendero Ribesño. This scat contained large fish scales and parts of crustacean exoskeleton. On the porch of a casita at the origin of Sendero El Peje I found an old dry and a very fresh small cat scats, possibly Felis pardalis. Maria Marta Chavarria uses this house to sleep in when she collects butterflies, and tells me a cat often defecates there. at 1312 hr. I found a juvenile



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3 January  
(continued)

(see next p.)

Scaphiodontophis venustissimus in the trail to the Sendero Arboretum from the AC Trub (217 + 130 mm, 9g). The snake was motionless until seized, and quite cryptic despite its velvety coral snake pattern and bright yellow (leaf-like?) head. When grasped it crawls vigorously and wraps the tail around anything in reach. At 1312 a Prof. Green from University of Colorado, studying Paraponera, showed me a juvenile Bothrops asper in a tight coil under the edge of a rotten fallen limb (♂ 325 + 50, 12.4g). Snake's head was parallel to limb's long axis, thus ideally situated to intercept a passing prey. When I scarcely touched him with a snake hook, the terrier turned instantly and bit. Struggled and bit when handled to measure, etc. At 1241<sup>h</sup> just after lunch, I checked trees behind (SW) of the comedor and spotted a pair of Iguana iguana mating. They were at least 8-10m above ground on a mat of foliage and limbs at the edge of a rank clearing, in an area where I have always been able to spot adults over the past few weeks. When first noticed they both had their heads pointing  $\approx 5$  and sides toward me, except that the ♂'s head was crossed over the ♀'s shoulder to the right. His body was largely on her left, but arched



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3 January (continued) around so the vents were at least nearly in contact - I could not see if they were actually copulating. There was a second adult ♀  $\approx 2$  m away in the same tree. At 1246 hrs. the pair separated - the ♂ remained immobile, raised on forelegs and facing me, with orange "roach" of spines erect and dewlap out. The ♀ walked  $\approx 1$  m away ( $\approx$  S.) and more or less simultaneously she and the other ♀ began eating green leaves in a seemingly "unconcerned" manner. Forgot to state earlier that I palped the tail and pelvic region of a Sphenomorphus cherriei from the juvenile (it has a visible umbilical scar) Scaphiodontophis venustissimus; the skink had been swallowed head-first and had a hind leg (to heel) length of 10 mm.

4 January Left at  $\approx 0815$  hr with Carmen for  $\approx$  CC 400, where Ron (new ad. asst. director) saw a Bachesis muta late yesterday afternoon - in fact, he told me it was at CCC 400 m so I dash out there at dusk, only to learn later of the mix-up in trail designation. He reported the snake as at the 400 m sign, on the W. edge of the trail - we found it at 0900 hr on that side but at 420 m on the CC - evidently asleep and in a loose coil. Based on size, bright coloration, and even sleeping posture I think it likely this is the same bushmaster I saw



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4 January (continued) 11 December 1987 — a "young adult" perhaps 1.6-1.8 m total length. Returned by way of the CCH and SOR, but saw no other snakes. A warm, sunny day. The last couple of days Iguana have seemed much less commonly visible from the bridge, an impression reinforced as I crossed back and forth for lunch. From  $\approx 1430-1600$  hr I walked out SOR to SHO 800 m and back. Released the Chironius grandisquamus at the capture site at SHO 250 m. In trying to get it to stay put for photographs, I had to haul it out on the trail 7 times before it (tired?) took up a stationary defense posture — neck in elevated, exaggerated S-coil, quadrates spread laterally, and mouth slightly open. It would make short strikes if approached closely, or turn and swing to bite if seized, but otherwise held the S-coil and oriented the entire elevated coil as I moved around it. When I retreated a few meters to put away camera gear, it waited  $\approx 1$  minute then crawled into the adjacent "successional plot." In retrospect, there are two other reasons to suspect that the Lachesis muta is the same one earlier seen nearly on the Sendero Swamp: it is in a loose, open coil, and it is on the trail edge, potentially exposed to sun — in fact, this morning it was in a sun fleck



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4 January (continued) such that I took photos first without flash. However, I recall a few other instances (e.g., the first Lachesis I saw at La Selva) of open day coils. A cloudy but moonlit night - I made two circuits around the lab clearing sidewalks without seeing anything, after dark. A visitor saw an adult Microtus nigrocinctus at dusk, on the path to the Old River Station.

5 January From 0900-1030h I walked to CC 420m and back, by way of the Camino Circular and Sendero Oriental. Rained at night until dawn, and a cloudy, humid but cool morning. Found the Lachesis muta in the same spot but with head facing south, unlike yesterday. Going to lunch I could spot the large orange ♂ Iguana iguana on the SE bank of the river, 2 ♂♂ near the bridge on the NW bank, and 1 ♂ at the river bend downstream - and one N. of the river near the volleyball court - but I still have a feeling things are calming down for them. After dinner, I walked to the Old River Station, out SOR & CCC to the back side of Sendero Cantarana, through it and out the CES to 300m, then around the lab clearing and out on to the river bridge for one last look for Polychrus in the adjacent trees. This was between 1945-2120h, right after a brief shower. There were scattered



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5 January  
(continued)

frogs calling, but I saw no snakes. The moon is more or less full, and the forest is well lit anywhere there's a hole in the canopy.

6 January

Spent most of the morning packing - leaving La Selva today for San José and the U.S. A beautiful ride out - bright blue skies, white clouds, and the green slopes well lit in the afternoon sun.

8 January

Carmen got my export permit this morning without problems. I went to the Instituto Clodomiro Picado with Alejandro Solórzano, where he gave me 2 baby Bothrops nummifer, born in captivity, a gold B. schlegelii from the Pacific slopes, and a peach-colored B. schlegelii that only reached the Instituto today from south of Limón. Alejandro told me that B. lateralis is the snappiest arboreal viper here, and as he was telling me that the one I was looking at on a hook made a fast strike at my face that ended with a "flash gaze" for an instant. Photographed an Enallagma from near the institute. In the afternoon I talked with Federico Bolaños, who gave me a scat or stomach content of a B. schlegelii (59.6 cm, 122 g, UCR 10231, Finca La Palma, Dos Ríos de Upala, Prov. Alajuela, 5 November 1987).



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19 March North Coast Preserve, Branscomb, Mendocino Co., California  
arrived here  $\approx 1800$ h yesterday w/ 23 students in a UC  
Berkeley Herpetology Class, plus TA's Kevin deQueiroz and  
Jon Losos, <sup>and</sup> ~~and~~ Hart Welsh (U.S. Forest Service). By that  
time today we'd found 19 species of herps. We went to  
two sites for Ascaplus on Elder Creek in the morning,  
and to the "White House" at edge of a meadow in  
the afternoon. In addition to herps, we saw a  
pigmy owl (Glaucidium), ~~heard~~ track and  
scat of Ursus americanus, and tracks of  
Felis concolor. I saw several scat, of Lynx  
rufus. The herps were:

Bufo boreas - under rocks near Wilderness Lodge.

Rana boylei - several along Eel River and Elder Creek.

Hyla regilla - several under rocks and many heard  
calling in late afternoon. At one short stretch  
of trailside in woods, we found 5 ♀♀ on a  
sundappled roadbank, w/  $\approx 10$ m. All gravid.

Ascaplus truei - 2 small ♂♂ in a side tributary  
of Elder Creek.

Dicamptodon ensatus - numerous larvae, some  
very large and obviously neotenic in the  
creek behind Wilderness Lodge.

Rhyacotriton olympicus - several adults and  
larvae in side seepages of Elder Creek.

Taricha granulosa - several under cover items in woods.

Batrachoseps attenuatus - " " " " " "



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19 March  
(continued)

Aneides fereus - a few, under cover items in woods.

Aneides flavipunctatus - " " " " " "

Desmognathus eschscholtzii - many, of all sizes and including at least one gravid ♀, under rocks and logs.

Clemmys macrocarus - 1 in Eel River.

Eumeces skiltonianus - several under cover objects.

Elgaria coerulea - many " " "

Elgaria multicarinata - 2 under logs by a lone old tree at edge of meadow by White House, same place we got this species when I was here two years ago.

Sceloporus occidentalis - many, in sun.

Thamnophis elegans - 1 crossing trail near river at  $\approx 1400$ h, tried to escape down hole under root.

198 + 65 mm, 3.8g, regurgitated adult Batrachoseps attenuatus, swallowed head-first tail autotomized, 38 + 42 mm,  $\approx 0.6$ g

Thamnophis sirtalis - 1 crossing trail  $\approx 1230$ h, 375 + 131 mm ♀, 21.7g, regurgitated the autotomized tail of an adult Batrachoseps attenuatus.

~~20 March~~ Diadophis punctatus - 2 under boards near the White House. One, 165 + 30 mm, 1.4g, regurgitated an autotomized tail of an adult Batrachoseps attenuatus,  $\approx 0.3$ g,  $\approx 32$  mm.



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20 March One Springs Rd., between Comptche and Ukiah, Mendocino Co.  
Stopped for  $\approx 45$  minutes at abandoned mill  
site, 6.2 mi E. of Comptche - saw Aneides flavipunctatus,  
Sceloporus occidentalis, Hyla regilla, and two  
small Thamnophis elegans. At a steep ravine  
 $\approx 3$  miles further E., we got numerous salamanders  
including Taricha rivularis, giving a grand  
total of 20 species of herps for the trip. Beautiful  
weather entire weekend!



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July 31

Portal, Cochise Co., Arizona

arrived here in mid-afternoon with Missy Wood, having spent the previous two nights with David and Billie Hardy and two days before that driving from Berkeley. Went road hunting at  $\approx 1830$  hr to the Sistrurus area,  $\approx 18-25$  miles SW of State Line Rd. on Hwy 80. Found a large adult, very light-feeling Pituophis melanoleucus stretched out and motionless just SW of the little bridge at the base of the curve/hill that Barney Tomberlin says is best for Sistrurus. Snake made an exaggerated S-coil, hissed loudly, and struck when I touched it with snake hook. Let it go. Collected a juvenile Lampropeltis getulus, which only crawled and squirmed when seized; a small Crotalus scutulatus that crawled in a frenzy, rattled, and struck when restrained; and a freshly hit adult C. scutulatus in the same area. Saw several Scaphiopus couchii and some Bufo on the highway.

August 1

Picked up several frozen snakes from Barney Tomberlin. Good rain at midday. Cool and overcast all day. Road hunted from  $\approx 1900-2230$ , up into canyon, back through Portal, several passes through the Sistrurus area and again through the canyon (to South Fork). Saw only a live Crotalus scutulatus (collected), and a DOR Thamnophis marcianus near the Sistrurus curve. Numerous



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August 1 (continued) Bufo cognatus and Scaphiopus on the road and calling, and one Rana (pipiens - type) in Cave Creek Canyon.

August 2 Woke up once during early morning to solid rain. Cool and overcast all day. Roadhunted to the Sistrurus site - saw no snakes.

August 3 Last night Barney Tomberlin gave me a Tantilla yagua that he caught at night by the Telephone Co. building in Portal. He offered it a relatively large Scelopendra which it killed but didn't eat - there was a wet, crunched bite site and the centipede was still moving when we examined it. Got some good photos of it this morning - the head is tan anteriorly, with a black head collar and bold light supralabial spot. The light tan head is not mentioned in Stebbins' account (actually, it looks khaki). From  $\approx 1000$ -1200 hr Missy and I drove to Paradise and back, stopping at the Paradise Cemetery and a hillside to turn rocks and look around. Saw a big Sceloporus clarki in a rock outcrop crevice, a juvenile Crotaphytus collaris on a small roadside boulder, and several small striped Cnemidophorus. At 1147 hr a small adult Masticophis bilineatus escaped off the roadside into dense mesquite. It was sunny and partly cloudy this morning, so  $\approx 1400$  we went to South



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August 3  
(continued)

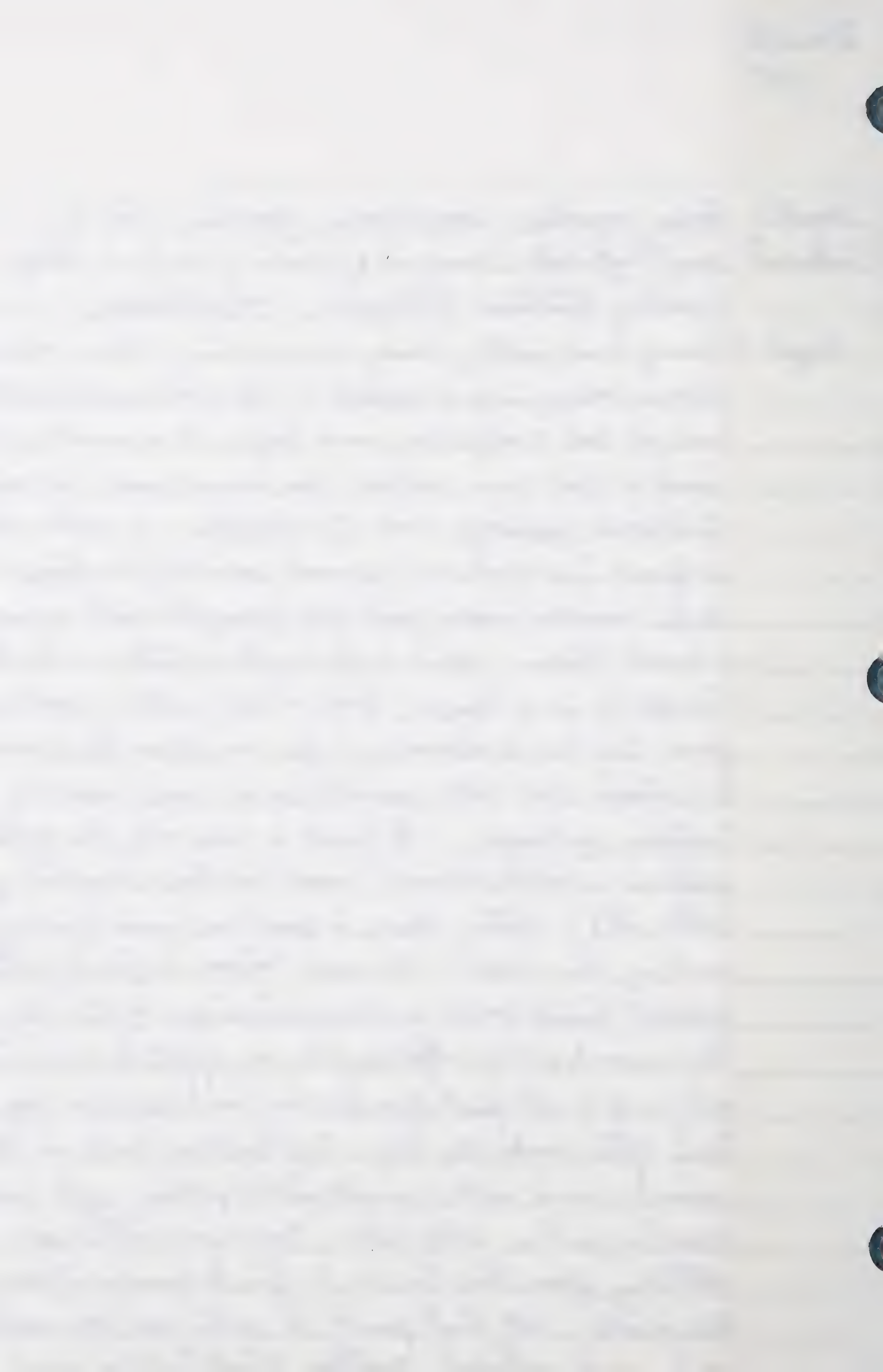
Fork picnic area and hiked up and back the trail until  $\approx 1530$  hr. Increasingly cloudy, but we didn't get rain until  $\approx 1700$  hr. Saw several Sceloporus jarrovi. At 1500 hr I saw an adult  $\sigma^7$  Lampropeltis pyromelana crawling under the end of a small fallen mossy log beside the trail. The site is open woodland with lots of grass and rocks, only a few meters from the creek. When I seized and lifted the snake it thrashed and emitted a sharp odor, tho I saw no visible cloacal discharge. As I handed it to Missy it bit her, then me and attempted to swallow my thumb. No palpable food. The snake is aberrant in two respects. There is much fusion of black bands, such that posteriorly the red is eliminated; anteriorly, the red is restricted to paired lateral spots. The light bands - which tend to straw yellow, as does the snout - fuse at the ventro-lateral margins to form irregular stripes. The snake was not especially obvious crawling in the leaves. During later handling the snake briefly assumed an S-coil, vibrated its tail, and made a short strike. After dinner at the Portal Store w/ Barney Tomberlin, Tony Snell, and Charlie Painter (New Mexico Game and Fish), Missy and I road hunted in rain to State Line Rd. and back - saw



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August 3 Bufo cognatus, Scaphiopus couchii, and S.  
(continued) multiplicata (several of each) and a large,  
freshly flattened Pituophis melanoleucus.

August 4 Sunny and partly cloudy this morning. From  $\approx 1130$ -  
1530 hr, Missy and I walked a  $2\frac{1}{4}$  mile trail that  
ends at Herb Martyr Dam and begins at a point on the  
road to that dam called Greenhouse Trail. We saw  
Sceloporus jarrovi and S. virgatus, a golden eagle,  
a fresh fox scat and several possible bear diggings.  
A few hundred meters past Ash Spring the trail crosses  
a small stream, and a few meters farther on the left  
(north?) is a large ( $\phi \approx 1m$ ) log with most bark  
gone. On the underside, a few cm above the ground,  
I noticed what later proved to be an small adult ♀  
Crotalus molossus - at first I saw only the yellow  
posterior and black tail (was she thermoregulating  
with it?). Getting closer I saw her head facing  
out of the crack - she was between a firmly attached  
piece of thick bark on the underside of the log.  
She moved out of sight despite my effort to hook her  
out, and I at first thought she went into the very deep  
leaf litter under the log. Spotted her back in the  
crack and after considerable poking got her  
crawling out a side hole. There was continuous  
rattling from the time I first touched her with  
the hook. At that point I could see her crawling  
out, and noticed another blacktail's head

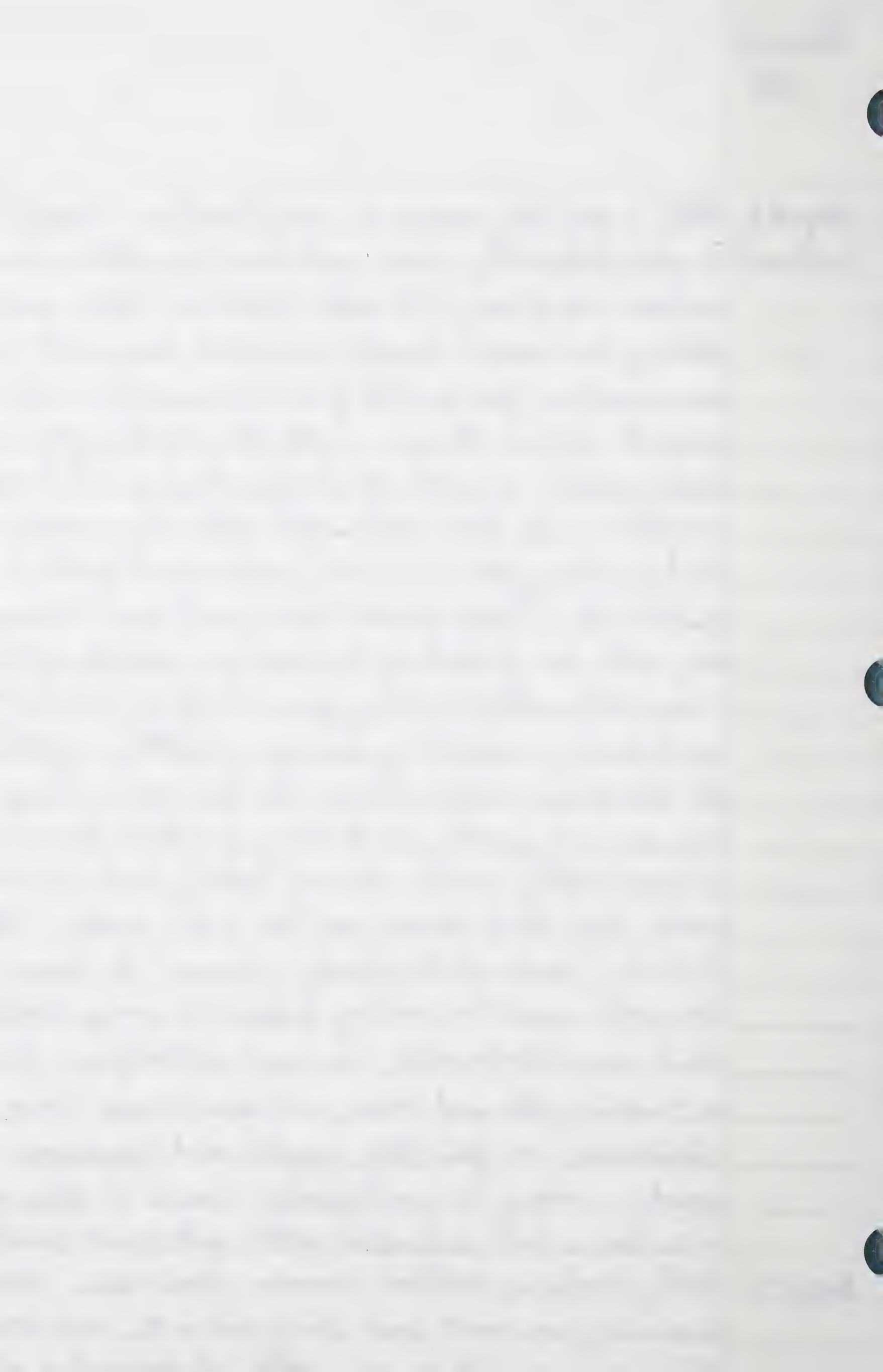


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August 4 <sup>peering</sup> ~~con~~ out the crevice in my direction. Caught the  
(continued) ♀ w/out difficulty — she continued to rattle when  
hooked into a bag, but never struck. After some  
poking the second snake — a much larger ♂ —  
emerged a few inches from the crack and  
struck twice at me — short strikes from a  
tight neck S-coil that flashed a whitish  
mouth. He then retreated into the crack,  
but in doing so his tail came out and I  
grobbed it. Then hooked him out and into a  
bag after he glided off the hook a couple of times  
— he alternated holding ground w/ an S-coil w/  
suddenly crawling away rapidly, rattling  
all the time. Had them in the same large  
bag in my pack, and they quieted down  
immediately. Still sunny walking back to the  
truck, but dark clouds over the higher peaks. By  
≈ 1800 hr, back at the Hardy's house, I hear  
thunder and the valley below is very dark.  
Hard rain into the night. We road hunted from Portal  
to State Line Rd. and back, and saw a huge Rana  
catesbeiana, a few Bufo cognatus and Scaphiopus  
couchi, many S. multiplicatus, and 2 Bufo debilis!  
— the live one (a ♀) defecated pellets full of ant heads.

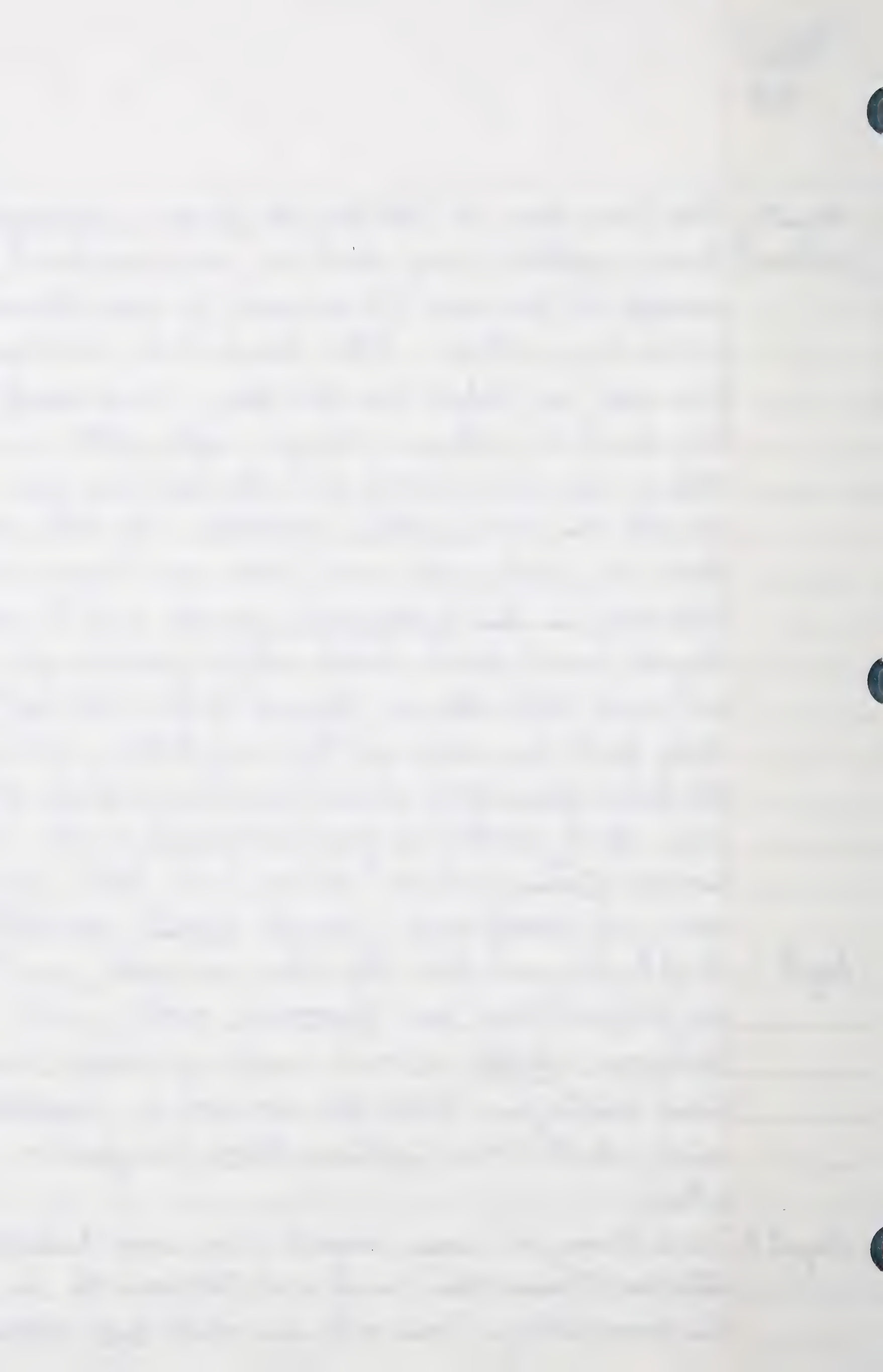
August 5 Partly cloudy w/ scattered showers, some sun. Mid-  
morning we went past South Fork on the Cave Creek  
Rd., stopping to search talus slopes and a meadow.



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- August 5 (continued) Then drove down to State Line Rd. for some photographs. Missy spotted a long-dead cow, now moistened enough by the rain (I surmise) to have attracted 6-8 turkey vultures. After lunch at the Portal cafe & a rest, we hiked the Ash Spring - Herb Martyr Dam trail - to retrieve Missy's water bottle and take a sample of bark from the log where we caught the two Crotalus molossus. The site is shown as right on the 6100' contour on a topo map. Saw only a few Sceloporus jarrovi and S. virgatus. Thunder and dark clouds over the peaks as we walked out, and later when we stopped at the Cathedral Rock Vista Point there were scattered raindrops. Ran into Ed Heske (former MVZ student) over dinner at the Portal Store. Road hunted up Care Creek Canyon to the SW Research Station and out 25 mi E. of Portal, but saw only toads and 1 juvenile Crotalus scutulatus.
- August 6 Bright sun and blue sky when we awoke, and for the first time saw Urosaurus ornatus and Sceloporus clarki on brick walls of Hardy's house. Road hunting on Portal Rd. we saw a neonate and adult ( $\approx 1$  m) Crotalus atrox (no food in either).
- August 7 Took Missy to Tucson airport, then road hunted over Gates Pass (Tucson Mtns.) and out Sanders Rd. in the Arava Valley. Saw only an adult Bufo alvarius.



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August 8 Had truck serviced in the morning. Did laundry and visited w/ Hardy's in the afternoon.  $\approx$  1930 Howard Jansen and I drove to  $\approx$  10 miles beyond # Falls on Hwy 86 and back. Saw a few Scaphiopus, several Bufo alvarius, and one B. retiformis. Snakes includes an adult and juv. Crotalus scutulatus (latter not saved), C. atrox, C. cerastes, C. sigus, Rhinocroilus lecontei, Arizona elegans (not saved), and Pituophis melanoleucus (not saved).

August 9 Spent last night with the hawlers and arrived back in Portal by midafternoon. I drove in by way of San Simon and Paradise, a beautiful ride. I hit a Phrynosoma douglasi that was basking in the middle of the road near Paradise, in an area of grassland and scattered junipers. Gerald Merker (Placeville) gave me a pair of Crotalus molossus he found in contact in the road at Stewart Camp in Cave Creek Canyon. I road hunted to the Sistrurus site and got only three snakes, one of them an aberrant Crotalus atrox. The snake is an adult  $\sigma$  that evidently lacks black and white on its body - ground color and blotches are blushed, although the tail rings are  $\approx$  normal.

August 10 Barney Tomberlin, Tony Snell, and I left  $\approx$  1030 hr for a site we visited a couple of years ago for Crotalus pricei, at  $\approx$  8100' el. and  $\frac{1}{2}$  air mile E. of Barfoot Lookout. Sun was shining brightly



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1988

August 10  
(continued)

this morning, but by the time we parked the peaks were in clouds, it was chilly and misty, and there was thunder. Rocks were very warm to the touch, however, and we saw a few Sceloporus virgatus and S. janviri active on rocks. We searched an E. facing ~~rock~~ rock slide w/ scattered outcrops, oaks, and stunted conifers - mostly open habitat w/ scattered thickets of some low shrubs. I encountered two ♂ Crotalus molossus w/in 5 min. at  $\approx 1135$  hrs., both of whom I heard rattling before I saw them. The first was in a defensive coil, in the open but near rubble and shrubs. It rattled continuously, repeatedly crawled away (sometimes backwards, w/ the head in a short time S-coil), and made short wide open strikes at least twice. Second snake was a few meters away, in a cavity between two adjacent rocks, and scarcely visible - I would surely have passed except for the rattling (or gotten bitten reaching in the rocks' crevice!). The second snake is an even larger adult, equally aggressive - also struck several times. Later proved to contain a rabbit, Sylvilagus (I released the first snake). On the opposite ( $\approx$  W facing) slope (which is wooded w/ large conifers, has lots of old fallen logs on grassy slopes), Tony found an adult ♂ C. pricei under a large piece of



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August 10  
(continued)

rusty tin from which I palped the hindquarters and tail of an adult Sceloporus jarrovi (saved the lizard, released the snake). As we drove to the Portal Store for lunch, found a large non-gravid ♀ Phrynosoma modestum basking (up on legs) in the middle of the road  $\approx$  100 meters W. of the Store - habitat is mesquite grassland. Road hunted to Sistrurus site, where I got a DOR S. catenatus that looked to have been hit  $\leq$  1 hr earlier. Also some Scaphiopus, an Arizona DOR, and a young ♂ Crotalus molossus 2.0 mi E. of Portal in mesquite-grassland - although there are hills and ledge systems w/in less than a mile (I later photographed the site). This snake rattled continuously, struck, and struggled fiercely when pinned.

August 11

Partly cloudy when I awoke at 0730 hr. Drove to 2 mi N of Paradise and back, hoping for Elaphe or Lampropeltis in the riparian woods along East Turkey Creek. Returning, I saw a large Crotalus atrox crawling out onto the dirt road 1.5 mi. N. of Portal on the dirt road to Paradise. Snake crawled rapidly back off road into heavy mesquite, moving  $\approx$  10 m before coiling, rattling all the time. After considerable struggle and some thorn



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August 11 (continued) wounds for both of us. I hooked the snake out, back up onto the road, and into the bucket. The animal appeared very stout so I thought perhaps it was a gravid ♀ and/or contained a large prey item. Dave and Billie Hardy arrived  $\approx 1300$  hr, and Dave and I measured the snake: a ♂ w/ no palpable prey, 1.85 kg, tail 97 mm, total length  $\approx 1.42$  m - a large diamondback by local standards. Every time I worked the snake, it inflated, crawled rapidly away, and when restrained formed a tight S-coil and occasionally struck. It also muscled heavily, but I never saw any cloacal discharge. Yesterday Ed Heske (former UCB grad student) told me he found a DOR Hypsigeron torquatus in mesquite E. of Portal that contained a Holbrookia. Dave and I rode hunted from Portal to the Sistrurus area and made five passes over the  $\approx 5$  mile stretch that seems best: we got four live snakes, one each Thamnophis marci (exaggerated S-coil, striking, and foul cloacal discharge), Crotalus scutulatus, Rhincheilus lecontei (thrash, cloacal discharge), and Sistrurus catenatus (immobile, but later rattles for long stretches whenever I approached the cage). Driving back we released a large ( $\approx 1$  m) Crotalus atrox that was just crawling onto the road.



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August 12 Billie, Dave, and I spent the morning driving to East Whitetail and Jhus Canyons, on the northeastern side of the Chinle Plateau - saw only several Sceloporus jarrovi, and the skeleton of an adult Pituophis melanoleucus beside the small stream in Jhus Canyon. After an early dinner, Dave, Barney Tomberlin, and I road hunted to the Sistrurus site and back - saw one neonate C. scutulatus, one neonate C. atrox, and three adult C. atrox, as well as a few Bufo and Scaphiopus.

August 13 Left before 0800 hr w/ Dave and Billie and went to the slide area  $\approx \frac{1}{2}$  mi E. Barfoot Lookout, where I saw the two Crotalus molossus on the 10th. Beautiful weather and lots of Sceloporus jarrovi and S. virgatus, but no snakes. After lunch stopped at Barney Tomberlin's, where a friend of his had for me an adult Diadophis punctatus from which I palped a small adult Hypsiglena torquata. Dave and I rode hunted in Cave Creek Canyon and E. of Portal from  $\approx$  1830 - 1930 hr. Then went to a party at the S.W.R.S. Talked to Kim Sullivan (Utah State U.) who has three records of Crotalus pricei eating juncos at Rustler Park. Driving back, by the Cajon's place, at 2215 hr we found an adult Crotalus molossus immobile and stretched



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August 13  
(continued) out in the middle of the pavement. Never rattled as we hooked it into a bucket.

August 14 Dave, Billie, and I left early and were at Rustler Park to look for Crotalus pricei by 0800. We searched a hillside of scattered conifers in an old burn area, and talus on the adjacent slope - all in bright sun - but saw only Sceloporus scalaris. Then went to the large south-facing slope at Barfoot Lookout - an enormous talus slide. at  $\approx 0900$  hr Dave found a huge ♂ Crotalus pricei:  $530 + 48$  mm, 108g, no palpable food. He saw the snake because it moved, then rattled as it went under a small flat rock. When handled it rattled, bit sideways, and struck at the snake hook; repeatedly crawled for cover, but finally coiled for photos when I covered it with my cap.



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1988

September 8

Portal, Cochise Co., Arizona

Arrived here  $\approx 1530$  hr, after a flight from Oakland to Tucson, where I picked up the Hardy's jeep. After dinner road hunted to Sistrurus area on Hwy 80, made two circuits back and forth, then back here to talk to Barney Tomberlin and Tony Snell.  $\approx 1$  mi. E. of Portal I stopped to check a juvenile Pituophis and getting back in the car saw a Micruroides crawling onto the road from mesquite grassland - not even dark yet. It squirmed and popped when restrained w/ my boot and then a grab stick.  $\approx 1/4$  mi SW of State line on Hwy 80 an adult Crotalus scutulatus got off the road before I could get out to catch it. Then got a small Sistrurus catenatus, immobile and stretched out - squirmed and rattled when seized w/ grab stick. Saw another juvenile Pituophis  $\approx 2030$  hr on Portal Rd., and after leaving Barney's, another, larger Micruroides just E. of the Portal (Cave Creek) Bridge - also squirmed and popped when restrained. Both of the coral snakes crawled very rapidly when first touched.

September 9

at  $\approx 0930$  Barney and I went to check a telemetered Crotalus molossus, 2.8 mi N. of Portal on the road to Paradise. He found the snake initially in a ravine bottom w/ dense vegetation (e.g., big sycamores, alligator juniper). To the west are the main Chiricahua rising above slopes of grass, rocks, and junipers. To the East, more open, steep, rocky country w/



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1988

September 9  
(continued)

lots of cacti, agave, yucca, and some emergent boulder outcrops and high bluffs. We tracked the snake to a rock it has been under for several days, and counted 56 clicks/60 seconds. after that we walked  $\frac{1}{4}$  mile up (S.) the road and could still get a clear signal if we wore headphones. Last rain here was  $\approx 5$  days ago - hard. Dave Hardy arrived in the afternoon and w/Barney and Tony Snell we re-checked the radio-tagged Crotalus molossus at  $\approx 1700$  hr - 63 clicks/60 seconds. Just before that we saw an adult Cr. atrox on the Paradise Rd., just N. of the paved road out of Portal in mesquite. Barney and Tony caught me a Diadophis punctatus on the Paradise Rd. shortly thereafter, and Dave and I found a large ♀ Phrynosoma cornutum basking at pavement edge between their house and the Portal store. It has a substantial healed wound in front of the left hind leg. We road-hunted to the Sistrurus area and made 3 passes, but got only a Rhinocheilus lecontei on the Portal Rd. and a DOR Heterodon (stomach full) on Hwy 80.

September 10

Dave and I put down a Crotalus molossus w/ halothane that Barney and Tony caught w/in the last month on the Paradise Rd.: ♂ 1090 + 75 mm, 850 g, scar on head, 11 rattle segments - outer one incomplete, basal segment 16.5 mm, 10th segment 16.1 mm



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September 10 56 heartbeats/min at cloacal temperature of 26.4C  
(continued) (while under anesthesia).



Greene, H.  
1988

October 11 Received the clean skull and four color slides of the carcass of an Orthogeomys underwoodi (HWG 1849) from Costa Rica, from D. K. Tebourseau (Asst. Prof. of Environmental Studies, UC Sta. Cruz). The gopher was trapped at the junction of two tunnels at the base of a cacao tree. Sr. Geremias Arias G. told Tebourseau that these gophers are active above ground at night (Sr. Arias G. worked for years as a gopher trapper for United Fruit Co. at Pasita [which either is or is near the type locality of O. underwoodi], and now lives near Playa Blanca. He is the uncle of Feyner Arias G., husband of D. K. Tebourseau).

October 14 Portal, Cochise Co., Arizona  
Arrived here  $\approx$  1800 hr last night, after flying to Tucson and driving Billie Hardy's car here via Douglas. I wanted to see the habitat of Sistrurus cotenatus along Hwy 666 (from whence HWG 1804) - it is grassland w/ areas of Yucca, and I saw at least one stream or canal and one drying pond. Farther north the grassland is heavily invaded w/ brush. Saw fresh DOR Pituophis melanoleucus on Hwy 666, Hwy 80, and the Portal Rd. This morning  $\approx$  0900 hr Barney Torkehi and I hiked up to find the Crotalus molossus w/ new Telonics transmitter in it. Sunny and warm, but not hot - and by noon it was partly cloudy and there was a brief shower. We found and photographed

The first part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The second part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The third part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The fourth part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The fifth part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The sixth part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The seventh part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The eighth part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The ninth part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development. The tenth part of the paper discusses the importance of the study of the history of the English language. It is argued that the study of the history of the English language is essential for a full understanding of the language and its development.

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1988

October 14 (continued) the blacktail, coil in shade under a boulder and lying on rock, in thick Heacia-Opuntia-Ocotillo shrub. The site is a steep slope below rimrock. Snake never moved and we didn't disturb it. Barney gave me a pair of Thamnophis cyllopsis he found on the road, one following the other (1850-1851). From 1430-1530 hr I walked upstream from the Herb Martyr Dam parking lot, but saw only Sceloporus janovi and S virgatus juveniles; I had found Urosaurus and S clarki around the Hardys' house earlier. Met Howard Snell on the road (He was coming w/ Pat Kennedy and Jerry? [both UNM graduate students] to a meeting at the SWRS). Took them up to check the blacktail at 1600hr. It was still coiled but a few cm from its morning site, seemingly in a better place to sun. It seemingly woke when Pat leaned close, and crawled slowly and continuously into a crevice under the rock - never rattled. By this time there were dark clouds everywhere and a slight drizzle as we descended the hill. Rained over an inch during the night (42 mm). Dave Hardy had arrived by the time I returned from supper at the store.

October 15 This morning we surgically implanted a Tebicon MOD-050 transmitter, freq. 148.4295, in a Crotalus molossus from the same slope as #1. Barney Tomberlin found this ♀ out crawling <sup>at 1700hr</sup> on October 3. She weighs 460g, transmitter 27.5g.



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October 15  
(continued) SV 840 mm, tail 57 mm. Six rattles including  
vase, which we painted yellow. Seemingly no  
problems w/ the surgery. At  $\approx 1600$  hr Dave Hardy  
and I released a large  $\sigma^7$  C. molossus at its  
capture site on Paradise Rd. (this  $\sigma^7$  was captured  
and processed last month, maintained at Dave's  
house, where it ate 2 Neotoma). Then we released  
the  $\text{f}$  ("#2") at her capture site, among Opuntia,  
mesquite, and ocotillo. Next went up the slope and  
located #1, a  $\sigma^7$ ,  $\approx 1$  m out from his rock overhang  
of yesterday, amidst high grass beside an Opuntia  
patch. Snake was in a tight coil, rattle not  
showing. Didn't disturb him. Back down the  
slope, we found #2 in full sun on top a  
prickly pear clump. She didn't move or rattle as  
we walked gingerly around taking pictures. At  
~~#20~~ 1620 hr we found a hatchling Pituophis  
melanoleucus on the road  ~~$\approx 1$~~  1 mi W Portal. We  
returned to #2 at  $\approx 1750$  hr and finally found her  
hidden by grass in a tight coil at the base of a  
 $\approx \frac{1}{2}$  m high agave,  $\approx 2$  m up slope from where  
we left her basking. It was getting dark fast as  
we descended at 1810 hr.



# H. Greene

1985-1989

## Journal

1989

Costa Rica

Calif: Contra Costa Co.

Arizona: Cochise Co.

Costa Rica

Arizona: Cochise Co.



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April 3

La Selva Biological Station, Prov. Heredia, Costa Rica  
arrived here  $\approx 1400$  hr,  $\approx 3$  hr late because a logging  
truck had turned over just past El Salto falls,  
such that we returned to Heredia and came through  
Parque Nacional Braulio Carrillo. I arrived in country  
on the 29th of March, having left Oakland at  $\approx 1000$  hr.  
Had a bumpy flight in the US, but a nice one  
from Miami - the pilot was José Pablo Gonzales,  
uncle of Carmen Rojas. Had dinner w/ Carmen  
Thursday and Friday nights. Went to the  
Instituto Chodomiro Picado on the 31st, to have  
lunch with Alejandro Sotozanos and José María  
Gutiérrez. Saw a chocolate-colored Bothrops  
schlegelii. attended the meeting of The Board of  
Directors of the Organization for Tropical Studies on  
the 1st and 2nd. D. E. Gill (U. Maryland) told  
me that on  $\approx 7$  March 1989 he and E. D. Brodie  
III found a small Pseustes poecilonotus here  
on the ground at  $\approx$  CFS 650 m, trying to eat  
a nestling Dusky Antbird (Cercomacra  
tyrannina, "feathers in pin", 9.2 g). adult  
birds were screaming at the snake, and later  
they found it had abandoned the bird. affair  
took place under an Asterogyne. I had come  
down w/ a sinus infection the 1st, such that by  
the time I arrived here I was miserable. La  
Selva is extremely dry - the Ecological Reserve



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April 3  
(continued)

swamp is dry, and everywhere open ground is deeply cracked. I'm told that except for a brief drizzle on the ~~se~~ 2nd, there has been no rain in a month or so.

April 4

I spent most of yesterday and today in bed, and possibly am getting better. Sharon Emerson (University of Utah) and I walked out the SOR and CCL to 1000 m and returned, but saw nothing. Only frogs calling at night were scattered Eleutherodactylus and several Bufo marinus that sounded as if down by the river. I saw one each Hyla elaeochroa and a small Smilisca (not blandini) on the walls of the baño in the old river station, and an adult Thecadoctylus ropicaudus also. Dendrobates pumilio is everywhere to be seen and heard, despite the drought. At the Board meeting there was talk about whether increased human presence was affecting large animal sightings, and David Clark opined they are more common now, perhaps because of reduced hunting. The Clarks have had a herd of Tayassu jaya below their house daily for a week or so, at  $\approx 1730$  hr. Yesterday and today I saw an agouti and two tinamous near the station, and at 1140 hr in bright sun today an adult jayra (Eira barbara) bounded across the new lab clearing (it had a rather bright yellow chest patch but was



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April 4  
(continued)

otherwise more or less solid black). After lunch I waded into the river below the Old River Station and searched logs up and downstream - no other (Chitra longicaudus) scots, nor could I see any from the bridge further downstream. Took photos of a swarm of yellow butterflies on a sand/gravel bar - they periodically exploded at my approach, fluttering back and forth over the river and reminding me of the famous passage in One Hundred Years of Solitude.

April 5

Alejandro Solórzano arrived ~~in the~~ <sup>yesterday</sup> afternoon, and w/ Sharon we walked out the CCC, CC, Sendero El Secampo, and returned by Holdridge and SOR. Hot and sunny, but it rained hard for 1-2 hours before dawn. At 0840 hr we found a ♀ Bothrops nasutus at x700 CCC, coiled to one side of trail center and facing down it - as Alejandro pointed out, well positioned to catch a foraging Ameliva festiva. It weighs 31.5g, SV 385 mm, tail 38 mm. A silver-gray, almost bluish snake, actually conspicuous on the mainly red-brown soil and leaf litter. I took one photo in situ, and as I circled for a second the snake struck hard toward me, landing in an open coil - instead of the original tight one. Clearly it was alert. Tried to crawl off, but not too animated, as we hooked it into a



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April 5 (continued) bag. At 0916 hr, 200 CC, a juvenile ♂ Rhadinia decorata crawling in litter on the trail. Had a complete tail. Writhed and exuded a foul musk when handled. In the Swamp I stepped off the boardwalk to reach for a frog or lizard and sunk to my knees! after crawling out, I found a small eel ( $\approx 15$  cm TL) that I took to be Synbranchus in the ~~B~~ mud on my boots, and it regurgitated a worm of some sort. Saw ~~400~~ Cebus in the swamp, and heard Alouatta on the Goldidge Trail. We passed John Arvin (Austin, Texas) w/ his group of birders in the successional plots, and shortly thereafter he found in the trail remains of a Sibon nebulata (tail and posterior) adult that had been largely eaten by something. at 1035 hr, 500 450 m, we found a Cryptotriton cristatus (103+243 mm, 34 g, "perro 2 on popo" fide Alejandro) in litter on the trail. At our approach it hopped once or twice, a meter or so to the side and rapidly ascended a sappling ( $\phi \approx 40$  mm) to  $\approx 1$  m and froze. When seized it struggled and was periodically limp, then struggled again, but did not gape when poked. There have been two adult ♂ Iguana iguana in trees near the bridge, on the north side of the Puerto Viejo - dull colored, but healthy looking. One was basking in a tree crotch fairly



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April 5  
(continued)

close to the bridge, and responded to my presence by dropping so low as to be hard to see. at  $\approx$  1330 hr today in bright sun I saw an adult ♀ (based on low battered spines on back), looking gaunt and very uniformly dark, basking on an emergent log on the north bank of the river. At 1915 hr John Arvin took me to a juvenile Bothrops nasutus (18g,  $\approx 270 + 42$  mm, ♂) that was stretched out in litter beside the arboretum trail. When touch w/ snake hook it made several wide, convulsive lateral swings, then paused. When picked up it writhed, exuded liquid from the cloaca, and tried to bite. A shower  $\approx$  2100 hr.

April 6

Rained hard again this morning before dawn. Sharon Emerson and I walked out the CES and Atojo (SAT) to a rock where Mat O'Brien and I have collected other scats before. Light rain at  $\approx$  0900, but hot sun by the time returned. At 0850 hr at  $\approx$  SAT 200 m I spied a juvenile Bothrops asper in litter, crawling beside the boardwalk. It crawled rapidly to the underhang, and turned and bit my foot when restrained. Had a yellow tail, no food. Found three small piles of fresh Ninia longicaudus feces on the rock at the south edge of the Rio Sarapiquí. River so high and rough we didn't try to cross it. At  $\approx$  1100 in the Arboretum saw an adult Leptodon cayanensis perch high in a canopy and, always keeping its back to us, pluck repeatedly at something.



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April 6  
(continued)

Twice the bird flew to a nearby tree, perhaps in response to our presence on a slope  $\approx 50$  m away, and returned. When I walked down to below the tree for an unsuccessful search for bits of the prey (?) it left. At  $\approx 1300$  hr I was taken to a yellow-tailed juvenile Bothrops asper, coiled beneath the overhang of some boardwalk steps near the repair shop and the dining hall. Snake was in a tight coil w/ head aimed out, well placed to strike an approaching lizard or heel in sandal! When I hooked it out the snake crawled rapidly w/ lateral undulation away from me, and when restrained w/ snake hook it immediately and repeatedly turned and bit. From  $\approx 1310$ -1325 hr I watched an adult Iguana iguana just below the north end of the bridge crawl across an expanse of leafy vegetation and eating almost continuously. I could clearly see leaves contacted by the tongue, and some of the leaves were several square cm and easily ingested. Also saw a gaunt ♀ high in a tree, in shade. Talked w/ Ruth Tiffer, who works for Cathy Brindle on the streams project (31-03-93, Apdo. 346, Paros, C.R.) and who knows a lot about local crustaceans. She told me that there are large freshwater crabs here (like I saw the Lutia eat below the bridge), that several species of local shrimp belong to the genus Macrobrachium, and that those in the Lutia seats I collected this morning belong



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April 6  
(continued)

to the genus Ateya. She said there can be marked variation in abundance and species composition of shrimp assemblages by stream, season, and even daily (the last because of rainfall effects). From  $\approx 1430 - 1700$  walked out the CCC and 50 R to release the Bothrops nasutus and Cryptophanes from yesterday (?), then stopped at the waterfall. Most of the time a fairly heavy rain fell, but before dusk there was scattered sunlight. Jack Ewel (U. Florida) also saw a juvenile B. asper today. Began raining after dinner and continued into the night. From  $\approx 2000 - 2200$  hr Sharon and I walked to  $\approx 650$  CES and back, and through the Ecological Reserve Swamp. More scattered frogs calling than on previous nights, and we saw a Norops limifrons asleep on a leaf, a Hyla leachroa perched on a leaf, and found an Imantodes conchoa crawling in litter beside the sidewalk, just into forest from the laboratory clearing (2215 hr, 480 + 315 mm, slight odor when handled). Still no water in swamp, nor frogs seen.

April 7

Rained all morning. At noon Guillermo brought me a very fresh scat of Felis onca or F. concolor, from junction of the CCC and 550. He and Joel saw a Leucopternis semiplumbeus eating, or rather holding a still live tinamou chick. Left La Selva at 1330 hr, to leave San Jose for the U. S. early on the 9th.



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May 5

Briones Regional Park, Contra Costa Co., California

Took a Zoology 107 field trip here, from 0800 - 1200, on a beautiful warm, sunny day. Water in all four lagoons (we came in from the Alhambra Valley Rd. side), but three of them heavily trashed by cattle. Saw 3 Pituophis melanoleucus (all adults above ground in open grassland), 1 juvenile Coluber constrictor, 1 juvenile Thamnophis elegans, and 1 adult T. couchi (regurgitated Gasterosteus). Also heard Hyla regilla, caught juvenile Rana aurora, saw numerous Sceloporus occidentalis, and counted 16 Clemmys marmorata basking in the fenced Sindsich Lagoon.

May 6

Repeat of yesterday's trip: 1 Pituophis melanoleucus (same stub-tailed animal seen yesterday), 2 Coluber constrictor (1 ad., 1 juvenile), 4 Thamnophis couchi (1 ad ♀ from Upper Sindsich regurgitated a Taricha), plus lizards and turtles and frogs.

June 4

Portal, Chiricahua Mtns., Cochise Co., Arizona

Arrived here  $\approx$  1330 hr w/ Claudia Juke, having left Berkeley on the 1st. Visited Howard Fowler in Tucson, who said he has seen Crotalus atrox, C. tigris, and Phyllorhynchus browni on the roads lately although there has been no rain. I visually located the adult ♂ Crotalus molossus (we have been radiotracking since last August) high on the slope where it's been all winter. The snake is in a hole within a crevice, under a flag



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June 4  
(continued)

That indicates David Hardy found it here on May 6<sup>th</sup> of this year. The hole is only a few cm in diameter, and all I could see was the side of a body segment w/ the head resting on it and facing directly out. The snake's colors seem dull to me, but the light was poor. Is it waiting to shed, waiting for rain (not due for another month or more), or waiting for a Neotoma to choose that hole for a nest? The last doesn't seem likely because the snake seems ill positioned to strike. I stabbed my knee on an agave or some other plant coming down the slope. Beginning  $\approx$  1930 hr, I rode hunted until  $\approx$  2115 hr - up Carr Creek Canyon to SWRS, down to Portal and out to Hwy 80 via State Line Rd. Drove to  $\approx$  22 mi SW of State Line Rd. to the area where I collected Sistrurus catenatus last year and made two circuits of the Bernardino Valley. Saw no snakes all evening, nor did I see any lizards going up to see the blacktail.

June 5

Drove up to SWRS and back at  $\approx$  0930, w/ a sidetrip to South Fork - saw only birds and a squirrel. Creeks dry in lower canyon, but there is still a low water ford below the South Fork picnic area as well as at least one bridge on the way in. From  $\approx$  1630 - 1730 hr I explored at the base of the slope on the W side of the dry bed of South Fork,  $\approx$   $\frac{1}{2}$  mile from the turnoff. Very dry, although there were insects under some rocks. Saw a few active juvenile and adult Sceloporus



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June 5  
(continued)

janovi. When I turned a flat rock  $\approx 40$  cm in greatest width, a juvenile Elgaria kingi dashed  $\approx 50$  cm to the cover of a rotten oak log. The lizard had a well-banded, unregenerated tail, and I could clearly see sinuous waves in the trunk and tail as it rapidly scooted away. It initially froze upon reaching the cover of the log, as a small portion of the tail remained visible until I reached for it. I tore up the log and litter, but the latter was thick and I failed to find the lizard. Drove up to SWRS before returning to the Hardy's house, but still no snakes. From  $\approx 1920 - 2100$  hr I made two circuits on the road, from Portal to SWRS, back to State Line, and then to Portal. Saw six white-tailed deer, but the only keep was a fairly fresh DOR Phrynosoma modestum at 1950 hr, 2.3 mi E. of Portal. Only a sliver of a moon, which was at times obscured by clouds, so it's very dark.

June 6

Checked the telemetered Crotalus molossus, found him at 1705 hr - the crevice is in shade from the rocks it is in and two large Opuntia patches above and west of it. I photographed the snake, which lie in an elliptical open coil, w/ body extending well out of the crack. The head was easily visible but back w/ in the hole. No tongue flicks or other sign of the snake sensing me, and I was at pains to not disturb it. Probably could have caught it, but I want



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June 6, to check its morning behavior. From  $\approx 1940-2115$  hr  
(continued) I drove from Portal to the Sistrurus site and saw no  
snakes. Barney Tomberlin and Tony Snell picked up a  
Microsoides euryxanthus <sup>(sc: Leptotyphlops, swallowed head 1st)</sup> during that period, hit by a  
car in front of them. Two nights earlier they saw 30R  
Pituophis and Crotalus scutulatus on the Portal Rd.

June 7 With Barney and Tony, checked the Crotalus molossus  
at 0850 hr, when the slope has been in full sun for  
several ( $\geq 3$ ) hours. We could only see the edge of a  
coil, deep in the hole. Then Tony took me high  
above on the steeper rock face to the winter sites.  
~~Some~~ Two holes the snake used are now plugged w/ dirt  
and litter — if that is typical, a snake using this  
slope can not depend on a particular hole — but of  
course there are many holes. In fact, our snake  
used several over the course of winter, some of them  
more than once on different occasions. After lunch  
Claudia and I drove up to the slide, just before  
the turnout to Barfoot, where I've caught Crotalus  
molossus and C. pricei in the past. Everything is  
exceptionally dry and the soil among talus everywhere  
exposed — at first I wondered if the Forest Service had run  
some huge machine over the area! Saw only a  
few Sceloporus jarrovi, adults and hatchlings.  
Went to Barfoot campground (now filled with  
Boy Scouts) for photos of the slide, and also saw  
several S. jarrovi there. Drove back via E. Turkey



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June 7 Creek Canyon (which has water) and Paradise. at  
(continued) 1715 hr I located the telemetered Crotalus molossus  
still in his hole this time w/only the head showing  
- facing directly out and largely filling the hole.  
At 1726 hr as I came down from that site, and only  
a few 10s of m below it, a Salvadora grahamae  
dashed a meter or so then froze stretched out near  
a bush, whereupon I grabbed it w/ Pilsbrough Tongue.  
Site was already in shade of the bluff. From 1945-  
2100 hr I repeatedly drove the first 2-3 mi E. of  
Portal, but saw nothing.

June 8 Antelope Pass, Hidalgo Co., New Mexico  
Visited an array of can trap grids extending  
from W. side of this Pass to E., run by Barney  
Tomberlin and Tony Snell for New Mexico Fish  
and Game Dept. This morning, at the <sup>western</sup> ~~eastern~~ - most  
site, we saw in the cans Cnemidophorus snyderi,  
C. tigris, Cophosaurus texanus, Phrynosoma  
modestum, Uta stansburiana, and a Heloderma  
suspectum! I found the latter in a can near  
mesquite and other dense vegetation,  $\geq 2$  m from  
the edge of a dry wash. It was a very young  
one, very pale and w/ a distinct umbilical scar  
(134 + 53 mm, 30.4 g.). Very feisty - squirmed,  
gaped, and readily bit a plastic bag. At  
the <sup>eastern</sup> ~~western~~ - most site (town of Animas visible in  
the distance) we saw an adult Phrynosoma



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June 8  
(continued)

modestum sun at our feet in open scrub. The animal made several short runs ( $\approx 1$  m), and each time upon stopping wagged its tail back and forth several ( $\approx 3-6$ ) times. The plane of movement was largely lateral, but at times the distal  $\approx \frac{1}{4} - \frac{1}{3}$  was slightly derated.

Portal, Chiricahua Mtns., Cochise Co., Arizona

As we pulled into the Hardy's driveway I saw an adult ♀ Pituophis melanoleucus slowly crawling in full sun at 1116 hrs. Only response to being picked up was attempt to crawl away. Freshly shed (bright colors and one small piece of old skin on her side), neither skinny nor fat. Palped a small rodent (saved) and released the snake.

At 1644 hr I found the leucocaudus Crotalus molossus deep in its crack/hole, only a loop of its body visible by flashlight. From  $\approx 1900-2015$  hr Claudia and I repeatedly road hunted the first  $\approx 2$  miles east of Portal, but saw no snakes.

June 9

at 0805 hr I saw an adult Pituophis melanoleucus escape into grass and mesquite  $\approx 1$  mi W. Portal.

San Bernardino Valley, Cochise Co., Arizona

arrived here  $\approx 1000$  hr w/ Barney Torberlin and Tony Snell, to scout the area for future studies on Sistrurus catenatus. First we visited the Robert Krenz Ranch, which is a few miles NW of Hwy 80 on Rucker Canyon Road. We were met



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June 9  
(continued)

by Bob Krentz (age 64) and his son, Robert. The former in cowboy hat, the latter with strange blue, insect eyes and dressed like a mechanic. They were stand-offish at first - referred to my Toyota truck as a "rice rocket" and wanted to know why I didn't "help out the goddamned economy by buying a Chevy!" They've had bad experiences w/ scientists in the past, particularly Peter Wasser and his crew from Purdue, and are clearly skeptical, but also were soon genuinely hospitable in an undemonstrative way. Told us we're welcome anytime, offered me a key to the gate, etc. We talked to them  $\approx$  30 minutes about drug runners, federal bureaucrats, etc. - all of which they view as threats. We also met the younger son, Phil, whom Robert earlier referred to as "the ready one likely to give you trouble." Bob Krentz enlightened me as to where the "Chiricahua" of older maps was - precisely at the junction of (now) Rucker Canyon Rd. and Hwy 80; it was a railroad "siding" and encompassed a small community, but  $\approx$  the end of World War II the railroad moved its workers to Douglas and the place disappeared. This makes sense in terms of that old specimen of Sistrurus catenatus from "Chiricahua."



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June 9  
(continued)

Driving out from the ranch, we stopped to catch a large adult ♂ Holbrookia maculata < 100 m from the junction w/ Hwy 80. It was sunning on a rock  $\approx$  100 hr, on open red soil near scattered grasses — as we approach to noose the lizard it ran  $\approx$  1 m and frozen w/ its head in a grass clump. It struggled and gaped to bite when handled. Walked around to look for others, but saw only Cnemidophorus uniparens. Next pulled in at a rangeland gate a few miles further SW — just over the hill from the long sweeping S-curve where I caught Sistrurus last year. Walked up to an abandoned cinder mine, from which I took photos SW, E, and NE of the valley. Saw two small adult (bright green) Crotaphytus collaris, one under tin and the other under an old timber. Tony saw a Urosaurus. There is a raven nest on some sort of rusty, protruding mine equipment, causing us to speculate that one could have poached raven eggs after a lightning storm. There is at least one barn owl nest <sup>sitting</sup> ~~sitting~~ in a hole in the hill at the mine, ~~then~~ with a pile of pellets and rodent bones below it. The soil here is a rich red-brown, about like the coat of some Herefords or perhaps a Santa Gertrudis. It is very dry now, the grass light yellow-brown.



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June 9  
(continued)

The only likely shelters for Sistrurus I saw appeared to be kangaroo rat burrows, which at this place are clustered into mounds. I noticed a few wallow-like depressions, roughly circular and a few meters across w/ different vegetation, that Barney says fill w/ water during the monsoon. There is a fair amount of tin and boards around the mine, but all such that underneath would be far too hot for a small rattler. Driving out we saw that there is an obvious marshy area at the valley's low point, in the middle of the S-curve — precisely where one most frequently finds Sistrurus and Thamnophis marcianus. My bet is the massaugas stay there through the cold and dry parts of the year, and move out and up the valley slopes of grassland during the monsoons. Barney and Tony had previously found an adult Crotalus atrox and Pituophis under a rusty abandoned truck at the mine, and many C. scutulatus in the grassland below — either lying out or in the mouths of K-rat burrows.

Portal, Chiricahua Mtns., Cochise Co., Arizona

at 1630 hr I could see the side of the body of the telemetered Crotalus molossus, against the entrance of the hole he has been in all week. Hot & sunny, tho even now the hole is in shade. Claudia and I



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June 9 went to SWRS for dinner from  $\approx 1730 - 2230$  hrs., but  
(continued) saw nothing on the road. George A. Middendorf  
(Howard University) told me that he saw (in a past  
year) an adult Elaphe triaspis in South Fork Canyon  
climb an agave and eat some nestling birds.

June 10 Spent the morning preserving snakes Barney gave me.  
From  $\approx 1500 - 1800$  hr Claudia and I hiked the trail  
to Ashe Springs and Herb Martyr Dam, but saw only a  
few Sceloporus jarrovi. After dinner at the Portal Store we  
drove to the Sistrurus site and made three passes over the  
3.5 mile stretch between Rucker Canyon Rd. and the ranch  
gate to the cinder mine. On the way out we got a DOK  
Phrynosoma cornutum and a DOK Pituophis.

June 11



Greene, H.

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July 3 San José, San José Province, Costa Rica

Arrived here on Lacsa at  $\approx$  1930hr, noticed again how their pilots make more exciting landings than quingos — we made a complete, tight, low arc and came in for a perfect landing. Spent this morning working on Scotocophis atrocinctus and Tartilla annulata in Jay Savage's collection (spent last night w/ he and Becky — promised to send her Darla Hilliard's book about snow leopards). Alejandro Solórzano picked me up; told him I really want a live Scotocophis and by coincidence he has one — a big pretty ♀ from near here! I weighed it after  $\approx$  1 hr of rehydration and fresh defecation. <sup>(see July 6)</sup> I detected no response to handling except rapid undulation. What a nice surprise! I'd call the light "rings" off-white or creamy, slightly gray; the middorsal stripe is bright deep salmon pink — and suddenly it occurs to me that this color pattern (which I have been considering unique) occurs in some Sonora semiannulata. Savitzky thinks Tartilla and Sonora are related, and since Scotocophis looks like a Tartilla w/ a tiny loreal perhaps it and Sonora share some homologous aspect of color pattern. Also visited Alejandro's "Serpentario," which is downtown — an excellent exhibition and gallery of Fozden prints.



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- July 4 Shopped in the morning, then joined Alejandro Solórzano and José María Gutiérrez (Director of the Instituto Clodomiro Picado) for lunch. Spent the afternoon looking at snakes at I. C. P. and Serpentario.
- July 5 Estación Biológica La Selva, Heredia Prov., Costa Rica  
Arrived here after an uneventful trip,  $\approx 1030$  hr, in a light drizzle. Cloudy all afternoon.  $\approx 2000$  hr I walked out the CES to  $\approx 200$  m, then back through the Cartanara swamp - no snakes. Water almost up to the boardwalk (there was reportedly a tremendous storm last night), and scattered frogs (Hyla loguay and others) calling. Saw a small Bufo marinus ( $\approx 80$  mm) on sidewalk in the lab clearing.
- July 6 At 0559 hr I saw a lutra, freshly wet, ~~go~~ <sup>dive</sup> off a log near the N. bank of the Rio Puerto Viejo, below the La Selva bridge. It resurfaced a few seconds later  $\approx 50-60$  m downstream, then dove again. Photographed the live Scotocophis - only response to handling is violent thrashing, often w/ body extended semisrigid. Examined <sup>(see also 'July 14, 1989')</sup> the feces - scattered arthropod parts, but not much for size of the initial feces. Most of it was unidentifiable small debris. The parts were yellow-brown, and at least three looked like segments of Scotopendra. From  $\approx 0900-1000$  hr I walked around the area  $\approx 500$  m CES, near Don Perry's Leitkys tree, where several Lachesis have been seen. Then out to the Arboretum, where



July 6 at 1015h I spotted a big ♂ Pseustes poecilonotus  
(continued) (800g, 1379+537mm) lying in grass in a patch of dappled  
sun. It was immobile and easily mistaken for  
a branch. Didn't move until I touched it, then  
instantly inflated most of the body, gaped widely,  
and bit my forearm - and wouldn't release  
easily! Some odor - not strong or especially disagree-  
able - was evident by the time I bagged it. Several  
Iguana and Rhinoclemys visible from the bridge  
at noon. Thunderstorms upslope and the afternoon  
and sporadic rain in the evening. Went to Carlarana  
Swamp twice and out CES to 300 m - scattered frogs  
calling at  $\approx 2040$ h David De Sarti (formerly Point  
Reyes Bird Observatory) encountered a  $\approx 1$  m Bothrops  
asper crawling on the sidewalk at the River Station.  
It struck "at his light" and went under a low  
wooden box in nearby grass, where I found it  
coiled and alert (head up on coil). A few seconds  
after I lifted the box it crawled rapidly  $\approx 1$  m  
and froze w/ body extended and head up, whereupon  
I lifted it on a hook into the can. Snake  
struck repeatedly,  $\approx$  reaching the can's top  
edge ( $\approx 45$  cm from bottom). (125g, 735+100 mm)

July 7 Rained hard during the night, starting off during  
breakfast. From  $\approx 0900-10:30$  I walked out to  
Holdridge  $\approx 600$  m and back via Carlarana Swamp,  
in a light drizzle. As I returned to the lab



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July 7  
(continued)

Taura (cleaning woman) showed me a Corallus annulatus coiled tightly between a rafter and the eave of the porch in front of the main AC Laboratory. When I hooked it down the snake tried to crawl away, fairly rapidly for a boid, but when I swung it between my legs it bit my pants and continued trying to bite while I restrained it behind the head. Snake is very chocolate brown, in contrast to the two brick red juveniles and large pale sandy adult I've seen previously. The boa (240g, 1005 + 195, ♂?) was in a compact, circular coil w/head over the edge, facing out from the building — thus in a more or less typical Corallus posture, except in an approximately horizontal plane perhaps caused by its size relative to the beam on which it was resting. David and Billie Hardy arrived before noon. After dinner,  $\approx 2000 - 2200$ , Dave and I walked to CES 700 and back, down to the Sura Trail, and over to the Cantarana boardwalk. At  $\approx 2050$  hr we located a young adult Lachesis muta at Sura 175 m, coiled alert on the S side of the trail — presumably a snake Nancy Greig saw recently at  $\approx 150$  m on this trail. The snake was in the open cleared border but near forest edge, facing the boardwalk and I think w/in striking distance. It was alert — tongue flicked and oriented w/ head when I walked nearby or set off a camera flash. I was able to hook it into a garbage can on first try w/out difficulty.



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July 7  
(continued)

although the snake maintained a striking coil and was orienting to me as I lowered it into the can.  $\approx 2140$  hr Dave spotted a large adult Leptophis ahaetulla asleep  $\approx 3$  m above the water in a small tree, perhaps 4-6 m from the boardwalk. The snake was in a loose coil, head oriented into the tree. Soon thereafter, near the eastern boundary of the swamp, we found a very large adult Leptodeira septentrionalis widely hunting frogs. The snake was  $\approx 4$  m above the water in a slender, sparsely vegetated tree or bush. It was descending a branch, almost vertical and not much larger in diameter than the snake. The movements were slow, the head kept close to the branch surface, and there were numerous short lateral movements. At one point it appeared to be pressing or poking at a patch of moss. At first I could see only the venter of this snake and thought it was Anantides inornatus—but then realized the body was a little too heavy and the belly more yellow or even slightly rose, and eventually got a good look through binoculars at the head and dorsal pattern. Frogs seen includes Hyla glaucochroa and 2 Agalychnis saltator, and others were calling. When I checked again at 2220 hr the Leptodeira was still searching slowly, but ascending and  $\approx 1-1.5$  m higher in the tree.



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July 8

Cool and cloudy, then sun after dawn. At 0615 hr the Leptophis ahaetulla we saw last night in the swamp was not to be seen. Substantial rain starting by  $\approx 8:30-0900$ , so we worked in the lab. Yesterday one of Dough Zervy's Earthwatch people perfectly described to me the color pattern of Phiocercus euryzonus (actually just placed in Urotheca by Savage & Crother) and said he saw 2 on July 6, after dark at either end of the Cantarana swamp. From  $\approx 1430-1600$  hr Dave Hardy and I walked out the CES to LOC 450m, where Robert Marquis (U. Missouri - St. Louis) saw a large Bothrops nasutus this AM - it had been on the path, then crawled onto an old fallen log. We failed to find it, but on the way out Dave spotted a B. nasutus that I walked over. It was a little snake (201 + 20 mm, 8.3g) and coiled in dead center of the boardwalk, next to a leaf, and perpendicular to the trail. The snake was in a tight coil w/ head up on outer coil & neck in S; stomach empty. I was able to lift it into a bag w/ forceps w/out disturbing it, but when I tubed the snake for palpation it squirmed about its long axis, ejected a considerable quantity of clear liquid from its cloaca, and bit at the tube sides repeatedly. Dave Hardy and I walked through the Cantarana Swamp and out to CCC  $\approx 700$  m from  $\approx 2030-2200$  hr, after I gave a talk to the OTS agroecology course. On the



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July 8  
(continued)

way out,  $\approx 2100$  hr, we saw an adult Anartodes inornatus lying  $\approx 1.6$  m above wet ground on the W. edge of the swamp on palm leaves. A few minutes later we saw a large adult Leptodeira septentrionalis crawling slowly at the same height in the same tree as last night. On the way back couldn't see the Leptodeira, but checked the Anartodes inornatus (690 + 155 mm, 32 g) - a gravid ♀ from which I palped a freshly head-first ingested Hyla eleochara, gravid ♀ (S-V 31 mm, head-width 11 mm, 2.4 g).

July 9

San José, San José Prov., Costa Rica

arrived here  $\approx 1100$  hr, w/ a room at the Hotel Johnson, after a bus ride via Braulio Carrillo National Park. Just W. of Rio Frio the bridge is out, so everyone exited one bus and trotted across an old foot bridge to catch another in the town. w/ Alejandro Solorzano, met Ardell Mitchell (Dallas Zoo) at the airport.

July 10

La Selva Biological Station, Heredia Prov., Costa Rica

arrived here  $\approx 1100$  hr w/ Ardell on the OTS car. Dave Hardy had gone out last night but got nothing. After lunch we anesthetized the young ♀ Lachesis muta caught a few days ago on The Sura Trail. 1235 + 120 mm, 995 g. clipped right half of snake's 3rd ventral anterior to anal plate. She has longitudinal



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July 10 midventral scars on #'s 24, 31, 65, and 110-113  
(continued) starting from the oval plate (as "0"). No evidence of external injuries. We implanted a Telonics transmitter (27.8g), 151.270 mhz. No apparent problems. On the 8th she defecated a large quantity of spiny rodent fur. We watched her for an hour or so after, during which she was slowly recovering responses, and at one time a gentle nudge provoked tail elevation and slight curling - a response I saw in an adult once after handling. Also, as she was anesthetized the snake muscled repeatedly in a manner that people were hit several feet away. After dinner Dave and Ardell and I walked out the CES to 700m and to the Cantarana Swamp via Sendero Sura, but saw nothing save frogs.

July 11 at 0800 we released the Lachesis muta at the capture site and left her immobile and in an alert coil; later Billie Hardy reported that w/in an hour the snake was not to be seen. Dave and Ardell and I walked around the Joop Trail, then out to Holdridge  $\approx$  150m in an unsuccessful attempt to find a "very fat" Bothrops nasutus that Jack Ewell saw there yesterday. At  $\approx$  0830hr a Norops capito hopped several times across our path, and expanded its dewlap when Dave seized it (ccc 50). At lunch Rocío Jopey brought me an injured juvenile Ninia maculata.



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July 11  
(continued)

that a visitor found on a ~~cement~~ path in the lab clearing at  $\approx 1200$  hr noon (122+31 m, 1.2g). Just before lunch Dave and Ardell and I used a receiver to locate the Lachesis muta, now coiled under a small plant <sup>(a Pepper)</sup> and a few meters in shade from where we released her. I walked very near before locating her visually, yet she simply remained immobile w/ head up. At 1310 hr Ardell found an adult Scaphrodontophis venustissimus (415+125+? mm, 43.5g, ♀?) crawling across a cement path at the edge of the lab clearing, in ~~forest~~ <sup>forest</sup> shade. Response to handling was rapid erratic crawling, w/ jerking of the incomplete tail. No musk or biting. At 2145 hr we found the Lachesis muta still under the plant, after we had walked out to CES 700 m — caught only an Eleutherodactylus fitzingeri (8g) in litter on the Sendero Surra.

July 12

Rained all night. At 0604 hr found the Lachesis muta under the plant, and again at  $\approx 1045$  hr. In between we walked  $\approx 200$  m out into the forest at CES 500 looking unsuccessfully ~~for~~ <sup>per</sup> Lachesis. At 1310 hr a workman showed me a small, brightly colored Micrurus nigrocinctus under a tractor wheel (4.0g, 265+25). W/ Dave and Ardell, walked out CCC to Caserio Central, via El Suanpo to Sendero Holdridge and back in. Found a cat scat, evidently containing Tayassu, at CCC 220. At  $\approx 1930$  hr Billie Hardy



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July 12 (continued) found a Ninia sebae on a sidewalk in the lab clearing (8.3g, 255+91 mm). From ~2030-2130 hr we walked around the Cartasana swamp. Found a large Urotheca euryzona (437+306, 55g) "nosing" in leaf litter beneath palms a few (~20) m from the water edge. It thrashed wildly and repeatedly coiled its tail in tight loops on my hand. I found a Leptophis ahaetulla (800+530 mm, ♀, 74g) asleep on leaves at the tip of a sapling ~5 m above ground and w/in 10 m of the swamp water edge. She regurgitated 3 Hyla elaeochroa: 2.8g, 38 mm, +f, ♀; 1.8g, 36 mm, +f, ♂; 1.2g, 30 mm, hf, ♂. Then an Leptophis nebulosus (460+295 mm, 13.5g) asleep on a palm, stretched out w/ some loose curves. Squirmed, musked when seized; later gaped in bag. Regurgitated a Hyla elaeochroa (29 mm ♂, 1.6g, hf).

July 13 Rained during the night, and lightly during the morning. Someone (Rob & Ron) brought in a little Bothrops nasutus (216+21 mm, 9g) from leaf litter near the lab clearing. From 1330-1500 I walked around CCH & CCC - sunny - but saw only 1 Eleutherodactylus. at 1500 hr Ardell was shown an Leptophis depressirostris that had been found swallowing a frog on sidewalk in the lab clearing (607+371, 63g) - from which I palped an Eleutherodactylus (SV 29, 2.1g) that had been



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July 14 Some rain during the night and on the way to breakfast - a cool, dreary morning. Found the Leptophis aheatulla from the swamp dead, so pickled it. Also the Scolecophis from Pavas, which had an infected eye and a couple of water blisters. It had defecated again and segments and one leg w/ "claw" were clearly visible <sup>(as centipede)</sup> under a scope. Forget to mention earlier ① a few nights ago Dave and I saw an armadillo (Dasypus novemcinctus) on the CCC (same general area where Feyrer Godinas Arias and I saw the injured one on a previous trip); ② last night Ardell saw a large Didelphis marsupialis cross ahead of us on the CES; and ③ a few nights ago on the CES I spotted an adult Greater Tinamou roosting on a horizontal branch  $\approx 8-10$  m above the ground and  $\approx 1$  m out from the tree trunk. Weights and measurements of two live Eleutherodactylus: ① E. fitzingeri, SV 47 mm, 8 g; ② E. transfordi, SV 21 mm, 1.2 g. From  $\approx 1430-1700$  h Ardell and I walked through the Arboretum and out the Sendero Sura to LOC, then to Sendero Atajo out to the Rio Sarapiquí, and back to the station via CES. Hot and humid. At 1450 h we found an adult ♀ Bothrops nasutus at Sendero Sura 905 m - she appeared extremely thin and evidently recently parturient, so we only nudged her off the trail rather than add stress by handling her. Picked up cat scats at Sura 690 m and Atajo 550 m, then 1 old and 2



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July 14  
(continued)

fresh otter (Lutra longicaudus) scats on the traditional otter rock on the Rio Sarapiquí, near the end of the Sendero Stajo. Ardell spotted an otter in the broad area of riffles just down stream, and we watched it for  $\approx 10$  minutes. Throughout that time the otter was always underwater - presumably hunting - or upright out of the water to shoulder level and eating. Dives seem to last 5-15 seconds, and about that same time was spent eating. Sometimes a food item was held in a paw briefly, but most pre-swallowing involved only chewing w/ the mouth visibly open. All prey appeared to be crustaceans, and once an item flipped or slipped out and through the air into the water. I was struck by how easily visible the otter was; it always faced into the late afternoon sun, to my back, and appeared very light colored around the chest and chin. After dinner Dane and Billie went out the CES to 700 m but saw only a probable Basanyx gabbi. Ardell, Ana Gonz, and I went through the Cartavana to CCC 700 m. As we returned Ardell spotted an adult, white and black banded Urotheca (Pleiocercus) euryzona immobile beside the trail. It began violent crawling at his approach, then thrashing as he pinioned it w/ his hand. This was at 2058 hr. When I tried to palp the snake at 2130 hr in the



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July 14  
(continued)

lab, it squirmed violently, coiled its incomplete but well healed tail around my fingers, and snapped off a segment. There was considerable bleeding from the proximal tail segment (remaining on the snake), and  $\approx 15-20$  minutes later I was able to measure  $\geq 1$  cc of blood in the plastic bag in which I immediately placed the snake. The tail flipped from my hand to the floor and thrashed rapidly and sinusoidally, and I started a stopwatch w/in 1-2 seconds of the break. Its movements were very regular and resulted in alternate flexion and coiling into a tight circle; the proximal end simply arched back and forth, but the distal end always marked very symmetrical S-curves. So, a series for the proximal end looked like: 7|5|7|5. A series for the distal end looked like this: 0|2|1|6|6|6, after 5 minutes and 35 seconds the flexions had slowed noticeably, and for the first time flipped so the ventral surface was uppermost. At 8 minutes and 55 seconds the flexions began to be interrupted by brief pauses. At 9 minutes and 38 seconds, 11:29, 12:30, 13:44 movements only resumed after I pinched the tail. At 13 minutes and 59 seconds there was no observable movement. The shed tail piece was 155 mm long, and weighed 5.4 g. The remainder of the snake wt. 43 g; 425 + 82 mm. at  $\approx 2230$  hr I found the



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July 14 (continued) Lachesis muta at Sura 165m sleeping - head down, as before. Checked the Cantarana, but found no further snakes.

July 15 Cool and overcast all morning - took a nap. After lunch Ardell saw a Nasua chase and almost catch (he scared it) an adult ♀ Basiliscus plumifrons in the lab clearing. From  $\approx$  1430-1630 I took Richard Foster, Charles? (his nephew), and Carol Farsetti (all from Partridge films - working on a snake picture) around the CCC - CCL loop, but we saw nothing. After dinner found the Lachesis muta as it has been. Dave, Ardell, Richard et al. went out after dark to CES 700 and the Cantarana but saw no snakes. Earlier (daytime) Ardell got a Bothrops nasutus near CES 500 ( $\approx$  480 + 53 mm, 98g, ♀ - <sup>[no]</sup> maybe gravid).

July 16 From 0830 - 1115 hr I walked SOR - Holdridge - Suampo - Camino Central to 1200m and back in via CCL and SOR. Before I left Cathy Pringle saw a small Erythrolamprus minus (223 + 39 mm, 5.2g) cross the sidewalk into palm litter in the lab clearing. When held it thrashed, tail coiled, expelled cloacal liquid, and elevated its flattened head and neck. At 0852 hr I caught an adult ♀ Spilotes pullatus (1700 + 590 mm, 780g) just before the origin of SHO on SOR. The snake extended out of woods onto the trail, w/ its entire body in tight pirks! The resemblance to



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July 13  
(continued)

swallowed head-first. At dinner Rodolfo Peralto gave me an Erythrolamprus oceanus (20.5 g, 364 + 14 + ? mm) he found this afternoon near the lab clearing. The snake crawls frantically, and when restrained elevates the curled tail, then pokes the hand w/ it. During repeated restraint for ~~for~~ photography it did not attempt to bite. The tail seems recently cut off. After dinner, Ardell, Silvia Barahona<sup>(U.C.R.)</sup>, and I walked to CES 700 and saw only a large Azalyxochinus callidus walking on a slender ( $\approx 5$  mm) branch or vine,  $\approx 3$  m above the ground - its blue and yellow flank stripes and red eyes very evident in my light beam. David and Billie Hard walked to  $\approx 700$  m on the CCC and back through the Cartarara Swamp. They saw a  $\approx 4$  ft. Bothrops asper coiled beside the trail at CCC 440 m - it remained still during a couple of minutes of photography, then crawled into the forest. They brought in a Leptodeira septentrionalis from the Cartarara Swamp (25 g, 530 + 195 mm). Found the Lachesis muta in same place, head not up and alert, at  $\approx 2130$  m. At  $\approx 2200$  m an undergrad. from U. Florida (Marcie) showed me a "water snake" in the <sup>Cartarara</sup> swamp that was an eel - I think Synbranchus marmoratus because I could not see pectoral fins. It was resting in vegetation just beneath the surface, opercular movements visible -  $\approx 15$  mm in diameter, maybe  $\approx 30$  cm long.



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July 16  
(continued)

a root was impressive, and I don't think the snake did it in response to my approach. In fact, it appeared unaware of me until I touched its neck w/ my hook. When seized it bit repeatedly, holding on and chewing a few seconds before release; and vibrated the tail strongly for a considerable portion of its length, also inflated neck when held. at 0908 hr, SHO 700 m, a Leucopternis semiplumbeus flew across the trail from a low branch and landed  $\approx 10$  m up on a branch facing away from me - was it hunting by the trail for reptiles? at 0928 hr at  $\approx$  SHO 600 m, where the trail parallels a stream, an adult Basiliscus plumifrons jumped in the water  $\approx 15$  m ahead of me, then ran  $\approx 10$  m and parallel to the bank before emerging. Dave Hardy got a Leptophis nebulosus at CES 500, on a pole (455 + 297 mm, 12g). Ardell found another Bothrops nasutus at the same place (256 + 29 mm, 17g). Richard Foster saw what was clearly an adult Larpropeltis triangulum on the Zoop Trail, but it escaped in litter. I gave an evening talk on tropical predators to a field course run by Cathy Pringle and Jim Afolter from the UCB Botanical Garden. afterward, Dave Hardy found an Eleutherodactylus fitzingeri (SV 47 mm, 8.5g) on the sidewalk - fed it



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July 16 (continued) To the black-and-orange Urotheca. At 2045 hr Deborah Clark showed Ardell ~~for~~ a Sibon melanocephalus (♀ 490 + 166 mm, 23g) crawling across the sidewalk. When handled the snake retracted into an exaggerated S-coil w/ quadrates spread, jerky false strikes, and cloacal discharge. At 2115 hr Ardell found an Imantodes cerberus (♂ 640 + 280 mm, 18.5g) in leaf litter during heavy rain, at CES 550 m — only a cloacal discharge when handled. At ≈ 2200 hr Richard Foster and Carol Farnelli took Ardell and I to an adult ♀ Bothrops asper (1563 + 200 mm, 1.75 kg) on a slope beside concrete steps at the SE side of the Cartavana Swamp. The snake was in a loose coil, w/ head and neck raised ≈ 20-30 cm and an angle of ≈ 60°, immobile. Ardell and I had no trouble getting her in a garbage can, using two hooks. Never struck — always tried to crawl away.

July 17 Alejandro Solozano arrived at noon, and we walked in the afternoon out SOR-SHO-SUA and back by way of CCC. No snakes. After dinner Alejandro and Ardell and I walked out to CES 700, and caught an Imantodes cerberus (♂ 681 + 315 mm, 14.5g) at CES 65 m, 2045 hr, crawling in leaf litter — no defensive behavior.

July 18 The temporal continues — days of cool weather and lots of rain throughout the day and night. This morning we overthrewed the big ♀ Bothrops asper.



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July 18  
(continued)

(clipped 3rd ventral ant. to oval plate, on snake's left) to measure and otherwise examine her. Ardell got her up in a tube w/out difficulty. Noted two old scars, one anterior on left side neck, the other on L side of posterior body - the latter w/ obvious broken ribs. In the afternoon Alejandro and I walked to Camino Central 1300 m and spent some time off trail in what seemed like excellent Lachesis habitat. We went out CCC and back CCH, saw only a possible Masticodytes or Dendrophidion that escape under a still palm. at 1930 hr Carol Farnetti led me to an adult ♀ Bothrops asper (1700 + 234 mm, 2.05 kg) coiled beside the trail at CES  $\approx$  100 m. She was perpendicular to and facing the trail, w/ head out over coil and parallel to ground - very nicely aimed at the boardwalk. Had to hook her into a can by myself (Ardell and Alejandro elsewhere), and once she got into the woods a few meters. afterwards I led 10 students of a UCB Botanical Garden course on a nightwalk to SOC  $\approx$  500, then to Cantarana - saw only 2 sleeping Norops limifrons on leaves, and frogs.

July 19

after lunch we anesthetized and examined the second ♀ B. asper (clipped 4th ventral, on snake's left) - she started up the tube and then shot up almost to the top before I grabbed her! We noted no external injuries, but her left fang was broken several mm above the tip.



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July 19  
(continued)



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August 13

Portal, Cochise Co., Arizona

arrived here  $\approx 1430$  hr after a roundabout trip across the Sierra Nevada, Nevada, and southern Utah - I had forgotten how spectacular the red cliffs around Bryce Canyon look in afternoon sun. Billie Hardy has a friend staying w/ her at their place, so I will stay w/ Barney Tomberlin at Vince Roth's house. Drove up Cave Creek Canyon  $\approx 1730$  hr and stopped to chat w/ Kim Murphy, the local game warden. Told me about shooting a lion from horseback, w/ a .30:30, in the Peloncillos years ago. after dinner I road hunted from  $\approx 1900 - 2200$  hr: out to the Sistrurus catenatus site on Hwy 80, made 2 passes there, then back and up Cave Creek Canyon to SWKS and back. Before dark I saw a large Crotalus atrox start onto the road just east of Portal, then rapidly crawl back off. a few minutes later, a very reddish subadult was crawling in the center, and I moved it off. Caught an adult C. scutulatus (no food in SC, gave snake to Barney) 5.1 mi E. Portal at 1930 hr. Saw fresh DOR Thamnophis marciannus 4.5 mi SW (1945 hr) and 6.4 mi SW State Line Rd. on Hwy 80, and shortly thereafter a freshly hit Crotalus scutulatus that I saved. On the way back a live Lampropeltis getulus and then a Crotalus molossus crawling off



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August 13 (Continued) Cave Creek Rd. just as it started raining. All evening there were heavy electrical storms on the surrounding mountain ranges. Rained into the evening.

August 14 Arranged things for surgery tomorrow, talked to David Hardy in Costa Rica, and checked two drift fences on the Paradise Rd. w/ Barney Tomberlin. From  $\approx 1900-2230$  I road hunted out Portal Rd & Hwy 80, made two passes over the Sistrurus site, and went up the Canyon to SWRS. Saw 6 snakes: 2 neonate Crotalus scutulatus, an adult Pituophis melanoleucus (2028 hr) at the Sistrurus site bridge (21.4 mi SW State Line) and a neonate Pituophis on the Portal Rd. (2211 hr), and two adult C. scutulatus (one on State Line Rd. and one preserved).

August 15 At 0940 hr Bryan Jennings (UCSB undergraduate) and I missed an adult Masticophis bilineatus ~~at~~ on Cave Creek Rd a few 100 m NE of the Hardy's Turnoff - it was immobile on the road when first spotted, but rapidly glided off and we couldn't find it in the mesquite. At 1120 hr I spotted a subadult Elgaria kingi rapidly undulating off the edge of Barney Tomberlin's driveway in Portal. Operated on a pair of Crotalus molossus found by Tony Snell in the same sycamore grove where we began tracking the male blacktail last year - surgeries seemed to go fine. Barney and Tony and I ate an early dinner and were at the Sistrurus bridge site, 21.4 mi SW



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August 15  
(continued)

of State Line Rd on Hwy 80, by 1900hr and we walked around W of the Hwy for  $\approx$  1 hour. The site is very reminiscent of the Kansas Flint Hills locality where I first saw Sistrurus in 1963—gently rolling grassy hills, cut by a shallow winding dry gully w/ small rock outcrops and many volcanic rocks over the landscape. Many rocks are well-embedded, but some are flat and liftable. In the past, they've seen C. atrox, C. scutulatus, Sonora, Eumeces obsoletus, Holbrookia maculata, Cnemidophorus uniparens here, and there is a report of Lampropeltis triangulum. There are Neotoma nests in the rock outcrop, and as Tony looked into the first one he saw an active Elgaria kingi that escaped into the tangle of sticks! Only other keep was an adult Crotaphytus collaris I found sleeping under a small flat rock. We got 7 snakes road hunting, 2 Crotalus scutulatus, 2 C. atrox, 1 Tamtilia nigriceps, 1 Lampropeltis getulus, and 1 Micruroides euryplakus—between  $\approx$  2000-2230 hr. We had driven out to Bernardino, made two passes between there and Rucker Canyon Rd., gone back up to SWRS, and then out the Portal Rd  $\approx$  3 mi before returning to Barney's home.

August 16

at 1130hr I caught an adult Masticophis bilineatus on Cave Creek Rd, at a place where there is open grassy "parkland" on ~~one~~ <sup>one</sup> side and oak woodland



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August 16 (continued) on the other. Snake was immobile in a sun patch, and only dashed off the road as I approached on foot. Squirmed and bit when seized. At  $\approx 1230$  hr we released the Crotalus molossus at their original capture site, a Nedonra nest built into the side of a pile of drifted branches in the canyon bottom. Barney Tomberlin and I drove to Bernardino and back between  $\approx 1600-1840$  hr. At 1610 hr we found an adult Crotalus scutulatus crossing State Line Rd. There was a very DOR Heterodon nasicus adult on Hwy 80 at Bernardino, hit today since it wasn't there last night. From  $\approx 1630-1800$  hr Barney and I walked up to the old cinder mine, 22.2 mi SW State Line Rd on Hwy 80, W of the Hwy. The ground is muddy and there is standing water in places; sky overcast, humid, almost cool. We caught 3 Sceloporus undulatus, 1 Cnemidophorus uniparens, and a pair of Crotaphytus collaris under rocks and old boards. Barney spotted a small Phrynosoma douglasi (or modestum?) crawling among small rocks in open ground; piece of shedding skin around head. Several Sceloporus escaped because they dove into the bases of "bunch grass" (?) when startled under rocks. After preserving the lizards and a fast dinner, I road hunted to Bernardino and back, up to SWRS, out to 2 mi E. of Portal, and



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August 16 back to Barney's house, from  $\approx$  2000-2240 hr. Until  
(continued)  $\approx$  2200 hr the sky was exceptionally dark, due to  
a full lunar eclipse and heavy cloud cover.  
This plus large electrical storms all around the  
valleys made the night spectacular. Saw a neonate  
Crotalus (2201 hr) and subadult Pituophis melanoleucus  
(2207 hr) on the Portal Rd, nothing at the Sistrurus  
site on two passes, and only a Thamnophis masianus  
on Hwy 80. Got an adult Lampropeltis getulus at  
1.6 mi NW Hwy 80 on State Line Rd. at 2135 hr - the snake  
was crawling as truck approached, and tried to  
crawl away rapidly as I got close. Only response to  
handling was to squirm - but it later crawled  
through the snake bag knot and escaped in Barney's  
house. Got ~~three~~<sup>4</sup> snakes on the Portal Rd: a Tantilla  
nigriceps that squirmed w/ body rigid and chewed  
my finger repeatedly; two adult, very nasty  
Crotalus scutulatus (4.5 mi E. of Portal at 2153 hr,  
very yellow; 2.1 mi E of Portal, 2200 hr); and a  
neonate Timorophodon biscutatus that only  
squirmed when handled.

August 17 Spent an hour or so w/ Diane Wagner (former UCB  
undergrad, now at Princeton U.) at her butterfly  
study site E. of Portal. At  $\approx$  1115 hr we used ~~telemetry~~  
to locate the two Crotalus molossus,  $\approx$  50-60 m uphill  
from where they were released yesterday. The snakes  
were lying together under a flat sloping boulder,



Heene, H.  
1989

August 17  
(continued)

under thick mesquite near Paradise Rd. The ♀ was in a tight flat coil in blotched sun, w/ rattle hidden. The ♂ was part in sun (head and tail), partly hidden under the boulder. An impressive sight! after a couple of minutes the ♂ clicked his rattles (we were  $\approx 2-3$  m away) and pulled back under the rock. at  $\approx 1400$  hr a SpERMophilus variegatus moved away from the boulder as I approached - unclear if it was startled by my approach or behaving nervously because of the snakes. Now the two snakes are together under edge of the boulder, heads adjacent and pointing out in sun. I took some photos, and eventually the ♂ rattled briefly and withdrew under the rock. When I checked again at 1645 hr it was dark cloudy and cool, and I could only see the edge of the ♂'s coil. I gave a talk at the SWRS after dinner, and road hunted from there to 2 mi E of Portal and back to Barney's at 2230hr - saw nothing. There was a heavy thunder storm during my talk, and afterwards Wade Sherbrooke (SWRS Director) took out on a narrow foot bridge over the Middle Fork of Cave Creek. The stream was in flood and I could hear a roar of boulders being rolled in the stream - as if they were in a rotating drum! When I reached Barney's house, the stream in front of his house was high enough that I elected



Greene, H.

1989

August 17 To park and walk across on the foot bridge  
(continued) rather than drive across.

August 18 Spent the morning pickling road kills Barney  
had frozen for me. At  $\approx 1400$  hr located both  
Crotalus molossus signals under the same boulder  
and could see an edge of the  $\sigma$ 's coil. Good  
rain started  $\approx 1430$  hr.



Greene, H.  
1989

October 19 Portal, Cochise Co., Arizona

arrived here  $\approx$  2300hr last night, having flown in from San Francisco via Salt Lake City and picked up David Hardy's jeep at the Tucson Airport. Surprised I was able to travel, because at 1704 hr on the 17th we had a  $\approx$  7.0 earthquake and the airport was closed for a few hours. This AM Barney Tomberlin and I stopped on the Paradise Rd  $\approx$  1.5 mi W of Portal in shrub, and I found an adult Cnemidophorus uniparens inactive and dirt crusted in a burrow under a small rock. Then we checked for the two telemetered Crotalus molossus, but they were not visible where he most recently saw them. Then we drove to the Krey Ranch on Rucker Canyon Rd and obtained permission to look for herps from Mr. Krey's sister-and-law, a Mrs. White. We drove  $\approx$  2-3 km down a dirt track that extends out onto the range  $\approx$  5. from Rucker Canyon Rd &  $\approx$  2.5 mi W. of Hwy 80. Then back to the backside of two connected hills w/ rock outcrops that we explored earlier this year. I saw 1 hatchling Sceloporus undulatus, active on a rock outcrop, and Barney saw a Urosaurus ornatus. a large Canis latrans loped ahead of us up the hill and over it, pausing every few dozen meters to stand in profile, ears up and facing us for a few seconds. At 1230hr as I clambered over rocks in grass beside a  $>1$ m diameter boulder, I heard a



Greene, H.

1989

October 19

(Continued)

rattle and looked back to see a subadult Crotalus atrox where I just stopped, drawing under the boulder. Hooked it out and eventually bagged it w/ Barney's grab stick. Snake was very riled: body flattened, it struck repeatedly and wildly, and at least twice bit the snake bag. I was impressed that the mouth was widely gaped during the strikes. Next we drove to Bernardino to watch for Sistrurus and picked up a DOR Heterodon nasicus that I thought from the car was a Sistrurus because of its dark pattern. Found a still thrashing DOR Pituophis melanoleucus on the highway back to State Jene Rd. After lunch I returned to the Crotalus molossus site on Paradise Rd., and found our telemetered pair both basking by the sheltering rocks at which they've recently been sighted — some several dozen meters apart.

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